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GLEANINGS IN BEE CULTURE

DEC. '86

SINCE 1873

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COVER . . . For most of us, winter brings a pause in management activity. But now is the time to prepare for next seasons events so your bees will be as busy as those on this months cover.

Photo by Diana Sammataro.

January 1987 The BEST Ever

Gleanings in Bee Culture will have even more for your reading pleasure starting in January. More pages, more great 'How-To' articles, beekeeping stories, marketing ideas and current industry events.

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THE INNER COVER

This may or may not be a surprise, but almost every change in food marketing during the past 50 years has been evolutionary, or gradually changing. Marketing changes have unfolded gradually, not overnight. Here are a few trends having a major impact on food marketing:

• EXPANDED WOMEN'S WORK FORCE. In 1960, 38% of eligible working women were in the labor force. By 1982, it was 52% and it is expected to be 70% by 1995. The implication — a continued emphasis on convenience.

• AGING OF THE BABY BOOM GENERATION. The first baby boomers turned 40 this year, adding yet another bulge in the big-spending 35-44 age group. This is the best educated generation in America's history, and retailers are facing more strategic shoppers. That means higher expectation of product quality and performance, diminished brand loyalty and more sophisticated palates.

• THE MATURE MARKET. Some 30 million Americans are 65 and older, outnumbering teenagers for the first time. Older people command more buying power, and appreciate personal service and have stronger preference for national brands.

• SMALLER HOUSEHOLDS. The number of 1 and 2 person households soared from 39% in 1955 to over 55% in the early 80's. This shift will obviously be reflected in growing appeal for small sized containers.

Needless to say, all merchandising strategies are driven by a variety of forces, not the least of which is the type of business you operate. The need to know who your customers are becomes the single most important factor in determining most merchandising decisions. The bottom line, of course, is that having access to this information is not the same as acting on it.

•

The following article is based on an editorial from "The American Fruit Grower". It is used with the permission of Mr. Gary Acuff, the editor.

PUBLIC PERCEPTION. Roll that phrase off your tongue a few times and become familiar with it. Spend some time pondering it — public perception. The phrase is an important one, because, like it or not, public perception is going to play a tremendous role in beekeeping, particularly when it comes to the Africanized honey bee.

There are some things you need to know about public perception. First, perception is not necessarily the same as reality, and could even be contrary to fact. Second, perception can be selective, accepting those things that reinforce it and ignoring or rejecting any conflicting input. Third, the media plays a major role in shaping public perception.

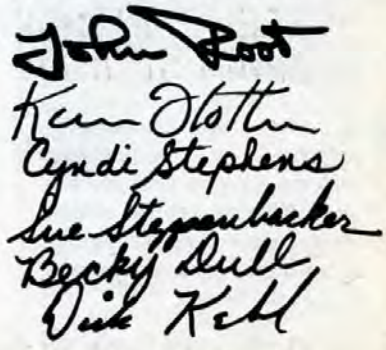
So what does this mean? Well, it means alot when it comes to the threat of the Africanized honey bee invading our borders. The public has developed the perception that these critters are "Killer bees". And the perception is being reinforced daily by a media that shares that view and is either oblivious to or unwilling to air any facts that might contradict that preconceived conception.

When your local newspaper picks a story off the wire about "Killer bees", what, do you suppose, is the public thinking about the beekeeper they have next door?

I'm neither diminishing the concerns about the Africanized honey bee, nor over-emphasizing its dangers. All I want to make you aware of is the fact that if and when this tiny bee crosses our border, the fuss it raises outside the world of beekeeping will be as large as the public has been led to believe it will be.

•

Finally, Diana and I, the whole staff at BEE CULTURE, and all the folks here at the Root Company, want to wish you and yours a very special holiday season and an extra good beekeeping year in 1987. We also want to thank you for being with us through this sometimes dry, sometimes wet, and generally not very good beekeeping year. Your loyalty to your avocation, or vocation as the case may be, is inspiring. We salute you in your endeavors, and hope you remain with us for another rewarding year of *Gleanings in Bee Culture".*



FOR THE RECORD . . .

Gleanings continually seeks accuracy in our publication. We recognize that errors do occur and use this space to correct them when discovered by staff or readers. Mistakes may occur in writing, editing or mechanical reproduction of the magazine. It is our policy to correct these mistakes. We encourage questions or comments from readers. Call (216) 725-6677 during business hours or write us at the address on the contents page of this magazine.

The Bee Words Game in the October Issue had 6 letters left over — POLLEN. We didn't put it in the answers section.

Mailbox

We supply the following for your information.

A NOTICE TO OUR READERS About Mail-Order Purchases

1 ***Never send cash.*** Always use a check, money order or credit card.

2 ***Keep a copy of all transactions,*** especially cancelled checks, money order receipts and correspondence. For phone orders, make a note of the order - including merchandise ordered, price, seller's name, address and telephone number, salesperson's name, order date and expected delivery date.

3 ***Understand the seller's return and refund policy,*** including the allowable return period and who pays the postage for returned merchandise.

4 ***If you should have a problem with your order or merchandise, write a letter to the seller*** with all of the pertinent information. Telephone complaints should be followed up with a letter of confirmation. Keep copies of all correspondence.

5 ***If you have thoroughly followed up in writing*** with the seller on your problem and still are not satisfied, contact the consumer protection agency in the seller's state or your local U.S. Postal Service.

Dear Editor:

This summer's drought in the Southeast not only cut down on the honey bees' production, it made them downright ornery, according to officials from Tennessee.

"The bees got fairly aggressive when it was hot and humid," said Tom Hart, a state Department of Agriculture official who keeps his eye on Tennessee beekeepers. "On other days, you could go to a hive in your birthday suit and not get stung."

Production is cut down because bees have to change their routine to cope with the hot weather.

"Instead of gathering nectar, the bees are lining the entrance of the hive and fanning air into it with their wings," explained Hart. "The air goes in one side and out the other."

"Normally the queen lays up to 2,000 eggs a day," he said. "But if the amount of nectar stored in the hive decreases, all the bees, including the queen, eat less. That means the queen cannot lay as many eggs."

Rollin Moseley
P.O. Box 905
Scottsboro, AL 35768

Dear Editor:

I have been following with interest the 'Great Refractometer Debate' and I don't think you have it quite right yet. Benton Smith's letter in your October, 1986 issue is correct to a point, but he has the reading adjustment backwards.

An increase in temperature *increases the moisture reading*. So with an increase of temperature *you subtract*, not add points as Mr. Smith's letter states. Maybe his letter is not worded quite right and he had the right idea.

At any rate, to prove this simply take a given sample of honey, place it and your refractometer in a very warm place and (as an example) you may get a reading of 18%, then later at room temp. you could have a reading of 17%, then still later place the same sample in the refrigerator and you will get a reading of 16%. The actual moisture being approx. 17%.

I have a refractometer and had the same question as Mr. Baltz, so I have run this test many times. So is something wrong with my refractometer and honey or is Mr. Smith wrong?

Christopher Baldwin
FRt. 1, Box 48
Fairmont, NE 68354

Dear Editor:

It has been some time since I have had any contact with friends made during my years of association with Gleanings.

I continue to receive Gleanings and however such an admission reflects upon my stint as editor, I must admit to seeing a steady improvement in the magazine since my retirement!

Having said this, I wish to comment on the contents of at least two articles of special significance in the October issue.

The column by Dr. Taylor (pg. 508) I regard as one of the author's best during the many years of Bee Talk. It is well worth reading several times and I will look forward to the second and any other installments.

Another article in the October issue is, in my opinion, of special significance. I refer to the report given to the Orange County Beekeepers' Association by Steve Taber, printed under the title "Some Problems To Ponder" (page 514).

Several actions have occured recently in California that I have followed with interest through the journals and by way of my limited personal contacts.

I think that as leaders, policy makers and regulators in the bee industry are bombarded with conflicting input (as is every other segment of society) the greater is the difficulty of making equitable decisions. There is always the possibility that those faced with a necessity to act may not be in full possession of all the facts or lack a true perspective of exactly what the problem involves. The two instances pointed out by Taber serve to illustrate the point that action taken in California may not have been best for the industry, or for relations with the general public. In both instances, first in respect to "sanitizing" (my own neologism) Kern County of "African Bees", and the other action of dealing with the "mite problem" illustrates what happens when action, however sincerely undertaken to correct the problem, may eventually prove to be decisive to the industry and adversely influence good relations with the public.

Continued on Next Page

MAILBOX . . . Cont. from Page 604

We can only hope, and take past experience as a guide, that future decisions concerning African bees, honey marketing / imports and other problems will be handled wisely, not merely to satisfy outspoken advocates of expedient action, taken without regard to individual rights and at the expenditure of considerable public funds.

Larry Goltz
3020 Harlan Drive
Redding, CA 96003

Dear Editor:

Thank you for your interest to my inquiry for information on the subject of multiple matings of queen bees.

So far the information (so called) is so uncertain as to the number of drones required to inseminate a queen bee that I can truthfully say, "they just do not know."

By the use of Pure Bred Breeder Queens in your breeding program, (Caucasian or Carniolan) you can often see from the hatching progeny the demarcation line very clearly between drone stock and that of the queen particularly if crossed with colored bees such as Italians.

I am more convinced than ever that I was on the right tract in believing that only *one* drone is necessary to inseminate a queen.

It will be a sad day for the supporters of the multiple mating theory, if they have to admit they were led astray after all.

Dave Mountford
Sony Creek
Woodford 4514
Queensland, Australia

Editors Note:
Readers?

Dear Editor:

Current estimates indicate the 1986 Canadian honey crop to be one of the worst in recent times. All provinces have reported below average production. Total Canadian consumption is 50 million pounds per year. The 1986 Canadian crop will be approximately 50 million pounds. Any honey exported to the U.S. or Europe will cause an automatic deficit in Canada, and prices will rise accordingly.

Beekeepers should take advantage of the strong European market. South America, the traditional supplier of white honey to Europe (specifically Germany) appears to be out of honey, causing European buyers to turn to Canada for their white honey requirements. Vigorous activity by European buyers supports this claim.

White honey has been trading in Europe at 75 cents/pound with a net return to the beekeeper of 65 to 67 cents/pound. Prices are expected to go up from there. New Zealand sells all its white honey to Europe for $1.00/pound, FOB the European port. We are underselling our product.

Early quotations by domestic buyers of 60 to 65 cents/pound verify that there is a world shortage of white honey. U.S. buyers appear to be holding back for the time being, hoping that beekeepers will make the first move.

Beekeepers are urged to take advantage of the Federal crop advance plan, hold their honey, and together force the price upward to a respectable figure of 75 cents/pound Canadian. Quotes by beekeepers should range from 55 to 60 cents/pound U.S., depending on quality (color and moisture), with the beekeepers assuming the freight, duty and brokerage charges to the U.S. market. The beekeeper should realize a minimum net figure of 50 cents/pound U.S. or 70 cents/pound Canadian.

Mike Thomas
Box 112
Clyde Alberta

Dear Editor:

I am enclosing a photograph of a Christmas tree I decorated December

Continued on Next Page

MAILBOX . . . Cont. from Page 605

1985. It was one of nine done for the Trees of Christmas exhibit at the Tennessee Valley Art Center in Tuscumbia, Alabama.

My husband David and I have been beekeepers for over 15 years, so that is why I volunteered to do the

tree and chose *"A Honey of a Tree"* for the theme. Using beeswax and bears as main decorations, I molded bears, hearts, and skeps out of beeswax and also used hand dipped tapers. I stenciled, painted, and cross-stitched ornaments and cut a paper-chain of bears for the garland. I even hung honey-dippers for decoration.

I am pleased to say it turned out to be a unique and successful endeavor. Many area school classes visited the exhibit so it proved to be quite educational for them. I was also able to sell honey and beeswax items in the gift gallery. What a great way to promote the beekeeping industry! And I had such a good time doing it! Thank you for letting me share it with you.

Gwen Sizemore
P.O. Box 41
Leighton, AL 35646

Dear Editor:

I note in the October 1986 Gleanings, page 498, the question regarding the 3 simple eyes.

How else can a bee get the angles correct in constructing cells?? She doesn't have a protractor nor a transit.

George W. Ziegler, Jr.
17 Circle Drive
Carlisle, PA 17013

Dear Editor:

It was with a profound sense of loss that I learned of the death of Walter T. Kelley on August 22, 1986. Not only was this a great loss to beekeepers, but to society as a whole. Through his life of considerable accomplishment, Mr. Kelley never wavered from his simple, honest, down-to-earth self. To me, he epitomized the very essence of all that is good about beekeeping.

Although I am a skeptic by nature and experience, I always found Mr. Kelley to be scrupulously honest and just plain fair in all his dealings with me. I have often remarked that I would be perfectly comfortable sending a one-hundred dollar bill to Mr. Kelley for the purchase of a single hive tool. I would not have given the slightest thought to getting the correct change, and the hive tool, in a reasonable time.

I have many fond memories of his writings, both in his catalogs and in the many times he took the time to write a personal letter to me, a small-potatoes hobbyist, in response to a question. Letters from politicians, lawyers, bankers, and sundry big shots have found their way to me for one reason or another over the years and have been discarded. Mr. Kelley's letters were different, and very special to me. Not only did they answer the questions, but they gave me real insight into the beauty and simplicity of beekeeping. I have saved these letters and keepsakes of a bygone era and of a very special man worth remembering.

I have had the privilege to talk and

Continued on Next Page

MAILBOX . . . Cont. from Page 606

correspond with Doris Pharris over the last several years of Mr. Kelley's declining health. Doris appreciates the real treasure that Mr. Kelley was to our beekeeping family, and she has humbly accepted the responsibility of steering the course that Mr. Kelley set. I hope she will have the wisdom to keep it true.

Thanks, Bee Man. You left me and many other with much more than a stack of bee supplies.

Norbert N. Smoot
Route 3, Box 494 • Woodcrest Dr.
Trinity, NC 27370

Dear Editor:

I am seeking confirmed evidence of how bees were first transported to Australia.

We know, or at least it is accepted, that Captain Wallis brought them here, on the ship "Isabella" in 1822 and that Dr. Wilson imported hives into Tasmania on the convict ship "John" 5/2/1831. So far, in my research of historical records, no mention is made of the actual method of keeping bees alive while in transit, bearing in mind that it would have taken seven months to get here and having to cross the Equator.

An unconfirmed source informed me that when bees were first taken to America they were loaded at night, open entrance, on the stern of the ship. Unfortunately the source of this information, *Gleanings in Bee Culture*, was loaned and never returned. We know that the Rev. Cotton in his book called "My Bee Book", set sail from England using ice, with the bees in a state of suspended animation for New Zealand. There is some evidence to suggest this wasn't very successful. This method, and the way the Rev. Cotton wrote about it, suggests to me that it was his own idea.

Hopefully, somebody out there can help me and would be kind enough to write. I would greatly appreciate any lead or information that would help me in my research.

Roy Glanville
60 Jackson Street
Eaglehawk, Vic. Australia 3556

Dear Editor:

In two years or less the African bees will be at our borders. It was released in Brazil thirty years ago. Since that time the government could not stop its spread and even now are unprepared with a constructive program.

Private enterprise must rise and relieve this problem. There is strong evidence that it can be controlled with tetraploid queens and proper requeening. These queens have four sets of chromosomes instead of the normal two sets (diploid). If a tetraploid queen is not allowed to mate she will lay diploid eggs parthenogenetically. These will become female workers the same as in any beehive since the sex of the honey bee is determined by heterosis at the sex loci. During meiosis chromosomes sets are halved, thus, 4n (tetraploid) becomes 2n (diploid) with no 1n (haploid) drones.

In the plant kingdom, most ornamental flowers along with tomatoes, peanuts and strawberries are tetraploid. There are several ways to obtain tetraploidy and economical ways must be researched. If I may, I will use examples in plant breeding because very little work has been done with animal polyploidy. My sources inform me that in some cases, a dominate 1n trait such as flower color can be overcome and masked by a 2n recessive color simply because of the extra genes. Therefore, it may be possible to have these tetraploid virgins mate with African drones and still mask all the African traits. The fertilized offspring would be 2n European and 1n African. If the bees raised a queen from this cross she would be triploid (3n) and because her chromosomes could not be halved equally at meiosis to produce viable gamates, she would be sterile, unable to pass on African genes. In the animal kingdom, tetraploid and triploid frogs have been used as genetic markers in clone and cancer research.

This development is not intended to allow foreign honey to be imported into the U.S. which the President and Congress has allowed from the developments of Langstroth and Doolittle. Instead, it is intended to protect the American people from the African bee, maintain a strong southern bee breeding program, thus providing essential mobile pollination and honey production. This is priority. Therefore, I am not soliciting any foreign monies for this development; although I would gratefully accept it if sent. I am instead, asking the Ameican people, it's beekeepers and it's leaders for monies sent to the IMN endowment fund, so I can operate with the interest for two years. I cannot develop this in two years without your help.

We don't have time to waste. Thank you.

Mel Disselkoen, President
International Mating Nuc. Inc.
P.O. Box 9552
Wyoming, MI 49509

Monthly Honey Report

December 1, 1986

The following figures represent current prices reported by our contributors. They are based on reports from many states averaged out for each region. Where insufficient information is received no price is shown. The retail prices represent the price of each size jar.

Wholesale Extracted	Reporting Regions									
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	R	A
60 lbs. (per can) White	38.46	39.25	48.00	32.40	--	36.00	40.00	41.25	26.40-48.00	39.34
60 lbs. (per can) Amber	35.53	34.23	45.00	31.20	--	33.00	38.00	37.20	21.60-43.00	35.88
55 gal. drum/lb. White	.49	.65	.39	.52	.44	.60	.56	.56	.39-.65	.52
55 gal. drum/lb. Amber	.43	.59	.33	.46	--	.55	.50	.50	.33-.59	.47
Case lots -- Wholesale										
1 lb. jar (case of 24)	28.33	28.12	24.50	24.00	25.92	24.00	25.50	29.48	22.80-38.40	27.18
2 lb. jar (case of 12)	27.58	26.24	23.50	22.75	23.76	24.00	23.95	26.53	21.00-34.80	25.80
5 lb. jar (case of 6)	30.45	27.53	26.50	24.49	28.00	27.00	25.50	27.47	24.00-34.00	27.67
Retail Honey Prices										
1/2 lb.	.98	.86	.82	.70	.83	.75	.90	.99	.70-1.10	.88
12 oz. Squeeze Bottle	1.40	1.33	1.27	1.37	1.17	1.25	1.35	1.39	1.12-1.60	1.33
1 lb.	1.56	1.56	1.35	1.40	1.43	1.55	1.60	1.67	1.30-1.94	1.53
2 lb.	2.73	2.84	2.56	2.82	2.59	2.75	2.85	2.77	2.40-3.55	2.76
2-1/2 lb.	3.60	3.65	3.20	3.97	--	3.25	--	3.23	2.75-4.60	3.49
3 lb.	3.60	4.11	3.65	3.32	--	4.00	3.95	3.49	3.10-4.98	3.82
4 lb.	5.15	4.29	4.65	5.89	4.99	4.50	4.95	--	4.25-5.89	4.92
5 lb.	6.50	5.53	5.15	5.75	--	5.25	5.90	5.61	5.15-7.00	5.78
1 lb. Creamed	1.83	1.82	1.35	1.70	1.69	1.25	1.55	1.56	1.25-2.00	1.65
1 lb. Comb	2.25	2.02	1.75	2.38	--	1.50	--	2.19	1.50-2.52	2.07
Round Plastic Comb	1.90	1.50	2.38	1.92	--	1.50	--	1.65	1.50-2.75	1.90
Beeswax (Light)	1.03	1.12	1.10	.97	.85	.95	1.15	1.10	.75-1.25	1.04
Beeswax (Dark)	.90	1.05	.95	.87	--	.90	1.10	1.00	.60-1.15	.95
Pollination (Avg/Colony)	22.50	10.00	17.00	27.50	--	--	--	25.00	10.00-27.50	20.11

Honey Report Graph Features

On the far right hand side you will see two different columns. The first, labeled "R", is the price range of prices reported from all contributors -- lowest to highest. This will give you an idea where you stand nationally. The second column, labeled "A", is the average price of a particular commodity across all regions. Example: the range in price of a 1 pound jar of honey sold retail is $1.30 - $1.94 and the average price across the country is $1.53.

In the comments section you will see a figure called the "Price Index". This figure is only a descriptive statistic that compares **ALL** regions to the highest region of the month.

Example: Region 4 has a price index of 1.00 this month and remaining regions are compared to that index.

If you believe the numbers here are not indicative of your area please contact us. We are actively seeking reporters in Regions 3 and 5. If interested, please contact the Editor. We provide compensation for your efforts.

•Region 1.

Price index .82. 1986 production ranging from 20-60% of 1985. Sales only fair with prices steady. Winter stores generally adequate to poor with feeding required in most areas. Fall crop not adequate for wintering.

•Region 2.

Crop index .73. Sales slow to fair with prices steady to lower. Most colonies in good condition, but many reports of poor fall crop. Dry weather affected much of aster crop, but goldenrod faired better. Winter stores only adequate and fall feeding required in most areas.

•Region 3.

Price index .54. 1986 production about 40-60% fo 1985. Sales good, even with foreign competition. Fall flows spotty, with some very good and some very bad areas. Feeding required in the latter.

•Region 4.

Price index .54. Sales steady to strong with prices average to increasing. 1986 crop 30-60% of 1985. Fall crop generally a disaster, with feeding required nearly region-wide.

•Region 5.

Price index .62. 1986 crop extremely poor, worst in memory for several areas. Sales improving and prices steady. Fall crop short and feeding required in most regions. However, some areas with good production and excellent sales.

•Region 6.

Price index .62. Sales slow to moderate with prices decreasing to steady. Fall flow moderate to good in most areas and colony conditions generally good.

•Region 7.

Price index .80. Sales brisk and prices increasing. Colony conditions excellent, with winter essentially set in. Fall flow was good. Demand for American honey increasing with promotional influence!

•Region 8.

Price Index 1.00. Sales spotty. Southern areas beginning to increase while northern areas beginning to slow. Colony conditions fair to good, fall flow about average.

•Alaska.

Reported prices for 1986 crop. 60# white and amber - $92.70; 1# case of 24 - $66.35; 2# case of 12 - $67.03; 1/2# retail - $2.03; 12 oz. squeeze - $2.40; 1# - $3.55; 2# - $6.55; 2-1/2# - $9.47; 3# - $8.68; 5# - $18.75; Light (clarified) wax - $7.75/lb; dark wax - $5.25/lb.

1986 production down 25-40%. Sales strong, and probably exceeding supply. Due to rather unique market, prices change very little over the course of a season. Reporter indicates prices will remain fairly constant until spring when shortages will cause increases.

For these reasons, Alaska will be reported only when significant changes take place; i.e. spring and fall.

QUESTIONS & ANSWERS

By RICHARD TAYLOR

Q. What is the best temperature for dipping beeswax candles?

Salo Boor
Shelby, Ohio

A. 165° F. is usually good, but it need not be exact. Beeswax must always be heated in a water bath, not over open flame.

Q. I have heard that beeswax can be eaten along with honey. Does it have any nutritional value?

Lynn Merrick
Philomath, Oregon

A. I believe, but do not know, that beeswax has no significant nutritional value. Nevertheless, I believe that it is good for one, in the same way that fiber generally is good for one, and I am certain it is not harmful. I have for many years consumed over a pound of comb honey a week, the year 'round, and am convinced that it is a good practice.

Q. I have read that Italian bees have never done well in Europe north of the Alps, where Carniolans are used. So should I use Carniolans here on Long Island?

James M. Svrcek
New Hyde Park, New York

A. Most beekeepers in the northern U.S. and Canada favor Italians. I strongly suspect that our Italian bees are quite different from those now found in Italy. I have friends who have done well with Carniolans, which are supposed to be gentler but more prone to swarm. My last colony of Carniolans was certainly no gentler. I cannot recommend either over the other.

Q. Is there color chart I can use to distinguish the different races of bees in my apiary?

Sammy N. Haynes
Hendersonville, N. C.

A. I know of none. Accurate distinctions between the three main races found on this continent — Italian, Carniolan and Caucasian — involve precise measurements of bees and their parts, venation of wings and so on. Sometimes, too, a given colony contains racial mixtures in the worker population, due to multiple matings by the queen. A good discussion of the races of bees is found in Morse and Hooper, *THE ENCYCLOPEDIA OF BEEKEEPING,* pp 330.

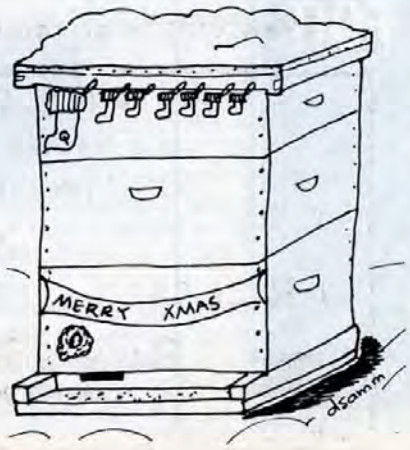
Q. Does each worker bee requiring defecation take a cleansing flight? Or do certain workers during their cleansing flights also remove fecal waste from the queen and fellow workers?

Charels Brand
Beltsville, MD

A. I believe (but am not certain) that each worker bee takes a cleansing flight on warm winter days. The disposition of the queen bee's fecal waste is, I believe, still a mystery. No one seems to have observed how this is accomplished, in an observation hive or otherewise. Queen bees, caged alone in mailing cages, have been known to survive for weeks in the presence of bees who feed them through the screen, and without fouling the mailing cage.

Q. I would like to plant one or two basswoods in my yard for the bees. Where can I get them?

Thierry Petersen
Stow, Massachusetts



A. I believe American lindens, or basswoods, are not common on the acid soils of your state. European lindens, which are smaller but otherwise similar, can be purchased as nursery stock.

Q. I have ten acres of meadow that I'd like to plant for bee forage. I am considering red clover, alfalfa, white clover and vetch. What would you recommend?

Jeffrey Hanelman
Brattleboro, Vermont

A. Although vetch is sometimes claimed to be a good nectar source here and there, it is an unreliable and dubious one. Alfalfa and all of the clovers thrive only on lime soil, and I think your soil is probably acid. You might need a ton or more of lime per acre. Even then these plants would, I think, be dubious sources in southern Vermont. Red and white clover thrive in the mid-west. Alfalfa grows mostly west of the Mississippi and, of the small amount grown in the New England area, most comes from Maine. I suspect you are stuck with wild sources, which do, however, produce delectable honeys in Vermont.

Q. I have four stands of bees placed five to six feet apart in the shade. Is this spacing too close?

Guy Bolt
Chattanooga, TN

A. No. Hives can be placed only a few inches apart and the bees will distinguish their own entrances without difficulty, provided not too many similar hives are placed in a row. Three hives can thus be placed side by side and there will be no significant drifting of bees from one entrance to another. It is my practice to have two hives on each stand and to distribute these pairs in the apiary in such a way that the bees can easily distinguish one from another by position, direction, color, proximity of bushes or trees, and so on.

BOOK REVIEW

By PHILIP MARIOLA

PEST CONTROL SAFE FOR BEES: A MANUAL AND DIRECTORY FOR THE TROPICS AND SUBTROPICS

The IBRA has published an interesting book on a topic quite relevant to tropical and subtropical beekeeping, namely the relationship between beekeepers and those involved in pest control on crops. There is much useful information for beekeepers, crop growers, and pesticide applicators, in an attempt to help all of them co-exist while protecting bees from needless pesticide kills. The value of honey bee pollination to food crops is explained, which is a first step in obtaining cooperation between grower and beekeeper.

PEST CONTROL was funded by the Tropical Development and Research Institute as a follow-up to a 1983 Book, *The IMPACT OF PEST MANAGEMENT ON BEES AND POLLINATION.* It attempts to answer the need for "practical information on methods of pest control that are safe for bees," to avoid potential problems such as pesticide applications at the wrong time, and the incorrect choice of a pesticide for a particular situation.

The book is divided into two parts, a Manual, done by Margaret Adey, and a Directory, compiled by Penelope Walker and Peter T. Walker. The manual has eight chapters on such topics as the importance of bee pollination to crop growers, steps which can be taken by growers to avoid poisoning bees with pesticides, different ways beekeepers can protect their colonies from pesticide applications on crops, some safety recommendations for the handling and application of pesticides, and points which should be included in governmental legislation regulating the use and sale of pesticides.

The directory gives methods of control for the most common pests of crops important in the tropics and/or subtropics, and which are insect pollinated. Much emphasis has been placed upon biological control methods, where practical. The directory is arranged alphabetically, from "Acerola" to "Watermelon", and after each entry is a list of the common pests affecting that crop and appropriate control methods.

The preface to PEST CONTROL claims that this book is written "for extension officers who need to tell crop growers about the importance of bees and pollination, and how to choose and use pesticides so that as few bees as possible are killed." The preface also proposes that this book is a valuable tool for beekeepers, people selling or applying pesticides, and crop growers who bring in honey bees for pollination, and that the book could be used in "farmer training colleges, development aid agencies, or rural development projects." I don't dispute these claims. There is, indeed, much valuable information in the book, and it would be useful to agency people involved in setting up beekeeping projects in many developing countries. The many drawings which accompany the text of the manual section are extremely simplistic, which could serve to negatively affect the acceptance of this book as a legitimate aid in a subject area which needs to be addressed, beekeeping and pest control. The preface claims that the drawings are for "those whose native language is not English." The difficulty here is that this approach may be offensive to third world countries already fairly developed in beekeeping, even though it may be more acceptable for the lesser developed countries. It is not an easy task, and even if I do have some problems with the drawings, I don't wish to let this blot out the fact that there is much valuable information on bees, pesticides, and control methods in this book.§

Phillip Mariola has been a beekeeper for eight years. He studied apiculture under Dr. James Tew at Ohio State University, then worked as an Apiary Inspector in Ohio for three years before becoming he Beekeeping Technician at the Agricultural Technical Institute in Wooster, Ohio. He maintains over 200 colonies for A.T.I., plus many queen rearing nucleus colonies. At home he has 10 colonies of his own.

RESEARCH REVIEW

By DR. ROGER A. MORSE
Cornell University
Ithaca, NY 14853

"...we need to rethink some of our policies regarding the control of American Foulbrood."

Rethinking American Foulbrood Control

Studies conducted in Denmark showed that 81% of the foreign honeys (60 of 75 different honey samples) and 23% of Danish honeys (13 of 56 samples) found in local markets contained American foulbrood spores. The foreign honey samples came from over 22 different countries. None of the countries represented had honey free from spores including the U.S. (one sample).

I was surprised by these data when I first read the papers cited below. I checked with Dr. H. Shimanuki, who for many years has been in charge of the USDA's Honey Bee Laboratory in Beltsville, MD. This is the laboratory that has done most of the microscopic analysis of disease samples in the U.S. Shimanuki has unpublished data similar to those from Denmark and told me he thought the techniques used and the data were good. All this suggests to me that we need to rethink some of our policies regarding the control of American foulbrood.

Natural History

American foulbrood (AFB) is caused by a bacterium. Only honey bees, and only the larvae, are affected by the microorganism. Under certain circumstances, the bacteria can form spores that may remain alive for many decades. Shimanuki (1978) suggests that the spores may remain alive for hundreds of years. We do not know the upper limits. One paper (see Shimanuki, 1978) indicated it was not possible to infect a larva more than 53 hours old; on the other hand it is very easy to infect younger larvae. Young honey bee larvae, those less than about two days old, are fed royal jelly, a secretion from glands in the heads of worker bees. Older worker larvae are fed honey and pollen. Thus it would appear that infected honey can be present in a hive without the larvae showing the disease, since they have not been fed honey during their susceptible period.

It has always been thought that robbing and drifting from infected colonies is the main way that AFB spreads. However, I have heard many apiary inspectors say that the incidence of AFB is often highest near garbage dumps and honey packing plants. The data from Denmark and Beltsville indicate why that may be true: much honey contains AFB spores.

Methods of Detection

The bacterium responsible for American foulbrood was identified in 1907. It has always been difficult to detect spores in honey because they are so small — in fact, so small they are not removed by filtration. Recently, better detection methods have been developed. However, it is still only when at least 10,000 spores are present in five grams (less than one fifth of an ounce) of honey that they can be detected. I understand that better methods of detection are being developed. In the studies done in Denmark the samples found to be infected were incubated on culture plates. The results were compared with samples obtained from The American Type Culture Collection to confirm the diagnosis. Each colony of bacteria that appears on the plates represents 5,000 to 10,000 bacterial spores.

Since so many spores are needed before one can positively state that the bacteria are present, it is clear that much lower levels of infection may be present without being detected.

Infected Honey and Colony Infections

In Denmark, 11% of the colonies examined had honey that was infected; however, visible signs of the disease could be found in only 2% of the colonies in the same or the following year. In most of the colonies found to have visible signs of American foulbrood, the honey had been infected the previous year.

In one apiary, spores were found in increasing numbers over a period of six years without any of the colonies showing symptoms of the disease; at last count there were 15 million spores per 5 grams of honey in these colonies. In rare cases, colonies have had Americna foulbrood without spores being present in the honey. Despite these odd cases, it is concluded that checking honey for spores can be of assistance in detecting American foulbrood.

Source of Spores in Honey

Where do these great quantity of spores come from? We can only conjecture that when older larvae, perhaps those three to four days old, become infected the disease remains at a low level; it does not kill them, nor do they show any signs of the disease, but the bacteria do produce more spores. When these larvae void their feces, which is their last act as larvae, the feces contain spores. Worker bees clean out the brood cells and may spread the spores to the stored honey. The honey is in no way harmful to humans but it can serve as a source of infection. I emphasize that much of this is conjecture. We have no good data on the spread of AFB from healthy-looking larvae.

Continued on Page 615

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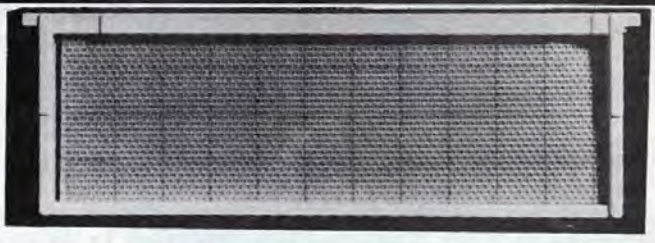

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MORSE... Cont. from Page 613

New Research Needed

Most people agree that American foulbrood is the worst of the bee diseases, at least in North America. Some states have done an excellent job in keeping the infection rate low through a rigorous inspection program. Several states, sometimes for long periods of time, have kept the number of infected colonies in the vicinity of 1% or lower. When infection rates are higher the system of inspection is obviously flawed. Under these circumstances, the work of the inspectors is slowed and beekeepers may suffer high financial losses.

The fact that colonies may harbor large infections and not succumb to the disease indicates we do not know as much about the biology and control of American foulbrood as we thought. What role does natural resistance play? What is the normal route of infection? Is drug feeding responsible for the high incidence of spores in honey? There are many questions to be answered.

For those interested in pursuing this matter further, the knowledge that spores of American Foulbrood may occur in honey is not new; it was reported by Sturtevant in two papers (1932, 1936). However, the techniques for detecting small numbers of spores in hive have been improved. Also, control methods have changed in some areas. Sturtevant found he could infect colonies with spores suspended in sugar syrup but to the best of my knowledge no one has done so with spores suspended in honey; there should be little or no difference but it is one of those things that has not been done.§

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THE BEE SPECIALIST

By ELBERT R. JAYCOX
5775 Jornada Road North
Las Cruces, NM 088001

"It comes down to the usual risk / benefit analysis when you consider looking at your bees in cold weather. As far as I'm concerned, the benefits have always outweighed the risks."

Looking Into Hives in Cold Weather

Theoretically, when you prepare your bees well for winter, you should not have to look within the hives until the balmy weather of spring comes. But things don't always work out as planned, so the bees come up short of food, or the stores are not well arranged in relation to the cluster, and you can save colonies and future labor by opening up the hives.

"Heavens," you say, "I can't open a colony in such cold weather without dong some tremendous damage," so you let things go and hope the weather will warm up early enough to allow you to work at temperatures generally recommended for handling bees. Such temperatures can be pretty high compared with those facing the beekeeper in late winter/early spring who needs to do some outside work. For example, Morse and Hooper, in *The Illustrated Encyclopedia of Beekeeping*, say you should not remove a comb from the hive unless the temperature exceeds 50°F (10°C). They suggest that for "extensive work" on a colony, the temperature must exceed 60°F (15.5°C). These are sensible recommendations for someone who just wants to look at his bees. They are not realistic for the person who MUST handle bees in the cold or lose them. This happended regularly when I kept bees in Illinois. Although we could often wait for a winter thaw to bring temperatures to the level suggested by Morse and Hooper, we did the work anyway if it stayed cold. Then we could only hope for a bright day with little wind.

In some 18 years, I never saw any evidence that I damaged the bees by a quick comb swap or other maneuver in weather close to freezing (32°F, 0°C). Instead, I saw many live colonies later which would have died without help. And I don't like cleaning out the hives of dead colonies. A commercial beekeeper took my off-campus beekeeping class in northern Illinois in which I talked about saving bees by late-winter checking. The following year he told me that he had heard my story before, but had never tried looking at his bees in cold winter until that year. He was ecstatic about the results. He had saved at least $1500 and had far fewer hives to clean out, a chore he hates as much as I do.

It comes down to the usual risk/benefit analysis when you consider looking at your bees in cold weather. As far as I am concerned, the benefits have always outweighed the risk. In such manipulations I not only check and adjust the stores as needed, but have also introduced a queen in late winter from a colony with too few bees to a stronger but queenless one. Any and all manipulations must be performed quickly. The disturbance usually causes a rise in the temperature of the colony and some increase in food consumption.

Adult worker bees are immobilized and become comatose at temperatures between 46° and 52°F (8° to 11°C). When brought back to higher temperatures, most workers survive the chilling. Some bees have lived more than 80 hours in a chill coma, but most die after 50 hours. Cold death occurs between 21° and 28°F (-2° to -6°C). The temperature of bees on the outside of a cluster in winter may be as low as 40°F (4.5°C) for a short time. It is only the warmer bees near the center of the cluster that fly out and challenge a beekeeper disturbing a colony in winter. Losses of adult bees at that time are probably from two sources: 1) Bees that fly from the hive and don't return quickly enough to avoid being chilled, and 2) Bees that fall to the hive floor from the outside of the cluster. Neither loss is usually large, so colonies are not reduced in strength by brief cold-weather manipulation.

Most of us are concerned about chilling the brood during hive manipulations in cool weather. It also seems that the unsealed brood selected for transferring to queen cups (grafting) is in jeopardy while out of the colony for a short time. Surprisingly, brood can survive for relatively long periods at temperatures below those normal for the broodnest. Dr. Karl Weiss, recently retired from the Bavarian Beekeeping Institute, West Germany, has done many experiments to learn more about the susceptibility of brood to cold temperatures away from the colony. In some of his early tests, he found that larvae up to 12 hours old survived well for 24 hours at temperatures of 41°F (5°C) in a refreigerator, and from 59° to 75°F (15° to 24°C) in a cellar or ordinary room. In all cases, the relative humidity was above 50%. After two days, all larvae died in the refrigerator and about three fourths in the other locations. None survived three days. Eggs 1-1/2 to 2-1/2 days old survived better than larvae.

Continued on Next Page

JAYCOX... Cont. from Page 616

Dr. Weiss points out that cooling of larvae outside the hive at ordinary temperatures is probably less damaging than shaking them. High temperatures are also more dangerous than lower ones because the larvae may dry out. He routinely carries combs of young larvae without bees to outapiaries and leaves them out of the hive for several hours without damage from cooling. Older brood, from 14 days on, is also very resistant to cooling. Only after long stays under cool conditions will the resulting adults show damaged wings and legs. Even queen cells can be transported in cool conditions without damage, according to Weiss.

In a recent report in *Imkerfreund*, Dr. Weiss discusses additional studies on resistance of brood to cold. This time he tested worker brood of all ages as well as queen cells from time of sealing to just before emergence. The brood was held for 12 hours in a cellar at 64°F (18°C) and 60% relative humidity. The locations of all larvae were plotted on a plastic sheet so their survival could be recorded after the comb was returned to a colony. Age was reckoned from the first day the egg was laid. Newly-emerged larvae were thus in their fourth day.

From day 4 to day 9, nearly 100% of the larvae survived the 12-hour period. This includes the first day the larva straightens out in its cell. On the 10th day, becoming a pre-pupa, only 15% survived. There were NO survivors on day 11. From that day on, survival increased until it was nearly 100% for days 15 to 18 as pupae. It is clear that you will lose some *sealed* brood by leaving combs out of the hive for 12 hours, but no unsealed brood. Weiss has left combs with mature pupae (over 15 days old) outside the hive for 24 hours at 61° to 64°F (16° to 18°C) without losses.

Susceptibility of queen cells to cold was similar to that in workers, but critical periods came sooner because of shorter developmental time. Most losses took place on the 9th and 10th days at prepupal and early pupal stages. Only at 2 days before emergence did the pupae endure undercooling well.

What Dr. Weiss' data show is that brood is not so eaily endangered by hive manipulation in cold weather as we might think. Combs in the brood nest are at temperatures near 95°F (35°C) in a strong colony. A *quick* look at such a comb outside the hive probably will not reduce its temperature to a level dangerous for the brood, especially if bees are left on it. The effect on brood undoubtedly relates to both time and temperature. A brief reduction to 41°F (5°C) should be no more damaging than a much longer (hours) exposure to the 64°F (18°C) used by Dr. Weiss.

Don't wait for 60°F or even 50°F temperatures to make crucial management adjustments for your colonies. Avoid the wind and do a fast job; have everything you may need ready beforehand.

You must be more careful with queen cells than with worker brood. They are safest when fully mature. Dr. Weiss also tested their resistance to shock at various ages and found they were most easily damaged at the early pupal stage. Cells with pupae 14 to 15-1/2 days after the egg was laid could successfully survive being dropped 2 inches (5 cm) four times while in an emergence cage. In relation to both temperature and shock, you should be very careful of queen cells until only two days before they are due to emerge.

New 2-in-1 Extractor

When I visited the Christchurch area in New Zealand last March, I saw an interesting new honey extractor that also doubles as a cappings spinner. It is made by John Syme of Ashburton; he calls it the "Syme 2-in-1 Honey Extractor and Cappings Spinner". It is a large, heavy-duty stainless steel tank with a perforated basket that holds 90 to 100 full-depth frames in radial fashion but without any internal baskets or partitions. Fewer frames can be arranged around the basket and extracted easily so long as the lid remains closed. The unit has a direct-drive, 3/4 horsepower electric motor with automatic controls. The motor also serves as a brake.

A load of cold clover honey can be extracted in 3 to 5 minutes. Honeydew honey takes a little longer. The Venturi action around the basket seems to help remove the honey quickly. After about 200 frames or 30 supers have been extracted, the broken-up cappings are pumped into the machine. The pumping takes about 3 minutes. The cappings are spun at a higher speed than combs and resemble flaky pastry in 4 or 5 minutes. They are easily removed from the sides of the basket and then extracting can be resumed. After being melted in a Penrose oven, the cappings from one metric ton (2200 pounds) of clover honey yielded only about 5 pounds (2.2 kg) of honey; a ton of honeydew gave up about 8 pounds of honey from the same quantity of cappings.

If additional heat is needed in extracting, the Syme unit has a jacket in the base for steam or hot water. The price of the extractor/spinner is around Z$9000. The New Zealand dollar is about US$0.50 as I write this. If you are interested in more details, write to John Syme, Syme's Apiaries, Staveley, No. 1 R.D., Ashburton, New Zealand.

Honey Season, 1986
New Mexico

Based on a very limited survey, the honey season for 1986 in New Mexico was somewhat above average. The bees I operate for New Mexico State University filled up early on sumac and mesquite in their desert location on a hill east of the campus. In May, I moved half of them to our teaching apiary on campus. At the time, I expected to have to feed the bees left in the other yard. Of course, they always have to have water available. Both groups prospered and ended up with our entire stock of 6-1/4 inch supers in place and full for the second time. It has been our best year in five seasons — another example of the old saying, "Good locations make good beekeepers."

Reports from commercial beekeepers here in the Mesilla Valley showed how much crop conditions can vary over short distances. It was a bad year for losses from Furadan treatments for the alfalfa weevil. Fortunately, the early mesquite nectar flow was good enough to help rebuild colony numbers to replace the lost bees.

For one beekeeper, the season started off well and then fell off. He did not feel that the increase in rainfall this year helped the nectar flows as it usually does. Primary producers were alfalfa and mesquite. Saltcedar and cotton contributed, but not to the degree they used to in the "old days".

A second beekeeper did well on the mesquite, but said that alfalfa hay

Continued on Page 630

BEE TALK

By RICHARD TAYLOR
R. D. 3
Trumansburg, NY 14886

"When the general public sees honey as something in a class by itself ...the bright future of beekeeping will be assured."

This is the fourth and last installment of my general survey of our craft, past, present and future. I have spoken of our problems, of which we have quite a few. Some of these, such as the threat of adulteration, are purely man-made, while others, such as the tracheal mite, have been vastly exaggerated. Now I want to talk about what I think we can expect in the near future.

Pondering the past and the present state of things, I asked myself recently: What is our most valuable asset? What is it that we, as beekeepers, have going for us? And the answer seemed perfectly clear: We produce, or at least we can produce, the most delicate, beautiful and delectable food on the face of the earth. There is nothing else like it, and no one can produce honey except a beekeeper. There are all kinds of syrups, every one of them manufactured or processed, but honey has only one meaning. It is the distilled nectar of flowers. I think our future rests on this fact, and not on much else.

When I first read C. C. Miller's writings on beekeeping I was struck by the fact that, in the 1860's, he was selling honey at thirty cents a pound. One hundred years later I was selling it for less, and the going wholesale price was hardly more than half that. One appreciates the significance of this when honey was twelve or thriteen cents a pound, two quarts of milk could be delivered to your door for fourteen cents, which was also the price of a ten-pound bag of potatoes. Honey, in short, was very expensive, but was nevertheless eagerly sought. Why? Part of the answer is that it was perceived as an incomparable delicacy. Most honey then was comb honey, and beekeepers sometimes earned more than a hundred dollars per hive for their crops. If that seems low now, put it in the context of what it cost then to live; or in other words, consider it comparable to earning about four or five hundred dollars per hive at present values.

No one would consider that a realistic expectation today, and part of the reason is that honey has to some extent lost its unique status. People, and even beekeepers, tend to think of it simply as another sweetner. Until recently, comb honey had almost disappeared from the market, and it is still hard to find. Meanwhile, commercial honey producers, marketing their crops in steel drums, trying to compete with fabricated syrups and the increasing flood of honey from abroad, and selling most of their crop to just one fickle customer — the U.S. government — face a very bleak future indeed. As a reluctant government agency continues to purchase more than half of their crop, commercial beekeepers gradually become reduced to virtual wards of the state, slowly losing their sense of pride in their work and in themselves. For beekeepers, under these baneful circumstances, to turn to government seeking more of this degrading treatment, trying to survive by increased legislation and bureaucratic paternalism, is only to exacerbate the depressing trend.

In what direction, then, lies our bright future? I think it is in the direction of specialty beekeeping, widespread but on a small scale. I think that beekeeping in our country is going to more and more resemble beekeeping in the British Isles. The British are probably the best and most dedicated beekeepers in the world, yet there is almost no commercial beekeeping there. Our opportunities for excellence far exceed theirs, in terms of the quality, diversity and abundance of our nectar-producing plants. We can produce absolutely beautiful honeys, of many kinds — honeys that will be eagerly sought after and dearly purchased. But we cannot do that without refining our methods and adhering to some demanding standards. I would like to see the day come when beekeepers would not dream of running honey through brand melters, or even heating it to prevent granulation, when the very word honey would again suggest to everyone a food of incomparable delicacy and taste. And I would like to see the day when comb honey, representing the quintessence of this most perfect food, would again be the specialty beekeeping product *par excellence*. There is, encouragingly, an evident trend in this direction.

The bright future of beekeeping thus seems to me to lie with the sideliner, the specialist, whose name becomes associated with the very special quality of what he produces, and who sells a large part of his crop directly to his customers. This kind of beekeeper does not need to worry about competition from imports, especially if he produces comb honey, which is almost never imported. He does not need to worry about labor costs, since most of the labor is his own, and he is joyous. Such a sideliner cannot make his entire living from bees, but he can certainly

Continued on Page 620

HOME HARMONY

By ANN HARMAN
6511 Griffith Road
Laytonsville, MD 20879

The holiday season is rich with traditions. My German Grandmother did not consider Christmas complete without several tins of cookies on the pantry shelves. However, what was more important than the tins being full was that the children made the cookies, the children's contribution to the household traditions. Admittedly some of the cookies suffered from too much red and green sugar or a superabundance of decorations sprinkled on, but even these youthful "mistakes" lent a colorful touch to the cookie platter proudly passed to friends and relatives.

The following recipe is an excellent cookie for children and grandchildren to make, quick and practically fool-proof! It is a drop cookie and can be modified and decorated in many ways to suit any occasion. In fact, save the recipe and use it for celebrations every month of the year.

Honey Cookies —
"The All-Occasion Cookie"

1 cup honey
1 cup butter
2 eggs
1 teaspoon vanilla
2-1/2 cups flour
3 teaspoons baking powder
1 teaspoon salt
VARIATIONS;
1 cup chopped nuts OR
1 cup floured raisions OR
1/2 cup cut peel and
1/2 cup candied cherries or pineapple
1 cup coconut
1 cup chopped dates
1/2 cup cocoa
substitute for vanilla:
1/2 teaspoon peppermint extract
OR 1 teaspoon lemon extract
OR 1 teaspoon almond extract
Tint batter with a few drops of red or green food coloring

Cream honey and butter until light. Add eggs and beat until light and creamy. Add vanilla and dry ingredients. Beat until well blended. Drop from teaspoon onto cookie sheet. Bake at 375°F for 12 - 15 minutes. Remove from pan while warm.

Although the quantity of cookies will depend on the child's idea of a teaspoonful, an adult can expect 5 to 6 dozen cookies.

THE HONEY KITCHEN
ed. Dadant & Sons

The next recipe, for Cranberry Sauce, is totally different from the usual jellied or whole berry sauce. It is not too sweet and the flavors of cranberry and orange are truly compatible. Here's a suggestion: everyone has "the impossible person who has everything" on the Christmas gift list. Just make a batch of the Cranberry Sauce, with your own honey of course, put it in a jar with a fancy ribbon tied around, and surprise those "impossibles" with a gift that they certainly do not have.

CRANBERRY SAUCE

1 pound (4 cups) cranberries
1/2 cup orange-flavored liqueur
1 cup honey
2-11 oz. cans mandarin oranges, drained

Combine liqueur and honey in large saucepan and heat gently while stirring. When the mixture is warm and easy to stir, add the cranberries. Bring to a gentle simmer and cook until cranberries have popped, about 5 to 10 minutes. Stir the mixture occasionally while it is simmering. Add the drained orange segments and mix gently. Continue heating for about another 3 minutes. Mix gently but thoroughly. Remove from heat, cool, then spoon into jars or gift containers. Cover and refrigerate. Makes about 4-1/2 cups.

adapted from a recipe in
THE CRANBERRY CONNECTION
by Beatrice Ross Busek

•

Winter vegetables are a part of holiday meals. Unfortunately other aspects of the meal receive more attention and inspiration; the vegetables come out losers. Try this quickly-made casserole. It may turn out to be the highlight of your dinner.

WINTER CASSEROLE

6 tablespoons butter or margerine
3 eggs
1/2 cup honey
1/2 cup chopped nuts (try pecans or hickory nuts)
1/2 cup flaked coconut
1/2 cup orange juice
1/2 teaspoon salt
1/2 teaspoon vanilla
2-1/2 pounds, cooked and mashed — winter squash OR pumpkin OR sweet potatoes
pecan or walnut halves, pineapple wedges, orange slices for topping

Melt butter and honey together. In a bowl, beat eggs slightly, then add the rest of the ingredients and blend well. Pour into greased casserole and bake at 350°F for 40 minutes, until hot through. Decorate top with nut halves or fruit pieces, or a combination of the two. Serves 6.

adapted from
GARDEN WAY'S ZUCCHINI COOKBOOK
By Nancy C. Ralston & Marynor Jordan

•

The cook's perennial Christmas wish is "to get things made in advance". This wish is seldom granted. However, you could make an attempt at this by stirring up these nibblers as soon as you can and storing them in a tightly covered container. For those of you who live in a damp climate, put the snacks in that container just as soon as they cool from the oven.

HONEYED PARTY MIX

4 cups rice, corn and wheat cereal squares
4 cups small pretzel twists or sticks
2 cups salted mixed nuts
1/2 cup butter or margarine, melted
1/2 cup honey

Traditional Oven Method: Combine cereal, pretzels and nuts in a 9 x 13 baking pan. Combine melted butter and honey (the honey can be warmed with the butter for ease in mixing). Pour over all, tossing lightly to coat evenly. Bake at 350°F for 45 to 50 minutes, stirring frequently, until crispy and caramelized. As soon as cool, store in tightly covered containers. Makes about 2-1/2 quarts.

Microwave Method: Melt butter in glass baking pan on HIGH for 1 to 1-1/2 minutes. Stir in honey and blend. Add cereal, pretzels and nuts. Toss lightly to coat evenly. Cook on MEDIUM for 10 minutes. Stir. Cook on MEDIUM for 5 minutes. Stir. Cook again on MEDIUM for 5 to 6 minutes or until crispy and caramelized.

from HONEY ...ANY TIME
California Advisory Board

Be sure honey is on the table at every holiday meal!§

Testing Your Beekeeping Knowledge

By CLARENCE H. COLLISON
Extension Entomologist
The Pennsylvania State University
University Park, PA 16802

The primary function of the drone honey bee is to fertilize the virgin queen during her mating flight. Since only a small number of drones actually fulfill this function, beekeepers often take steps to discourage their production. Inspite of their efforts, the colony proceeds to build drone size cells and raise drone brood in relation to the time of year, colony strength and colony conditions.

How well do you understand the factors that regulate drone production, drone mating behavior and the drone's reproductive system? Please take a few minutes and answer the following questions to find out how well you understand these important topics. The first nine questions are true and false. Place a T in front of the statement if entirely true and an F if any part of the statement is incorrect.

(Each question is worth 1 point.)

1. ____ Drone congregation areas, once established, are often used year after year.
2. ____ The mating act is terminated by an audible snap as the drone is physically separated from the queen.
3. ____ During the mating flight, drones approach the queen from a windward direction and orient to her posteriorly and dorsally.
4. ____ Upon mounting the queen, the drone forces the sting chamber open and proceeds with the eversion process.
5. ____ As a young drone matures sexually, the testes shrink in size.
6. ____ In the fall, the youngest adult drones are evicted first.
7. ____ When drones are away from the hive, they obtain nourishment and energy from nectar they collect from flowers.
8. ____ Drones reared from eggs laid by laying workers are smaller in size, have viable semen and effectively compete with drones reared from unfertilized eggs laid by the queen.
9. ____ The construction of drone size cells and the production of drone brood is controlled by the same mechanisms within the honey bee colony.

Multiple Choice Questions:
(one point each)

10. ____ The queen honey bee distinguishes between worker-and drone-size cells so the right type of egg is laid (fertilized or unfertilized) with her:

A) compound eyes, B) antennae, C) simple eyes, D) forelegs, E) abdomen

11. ____ Drones typically begin orientation flights ___ days after they emerge as adults.

A) 14, B) 8, C) 6, D) 10, E) 12

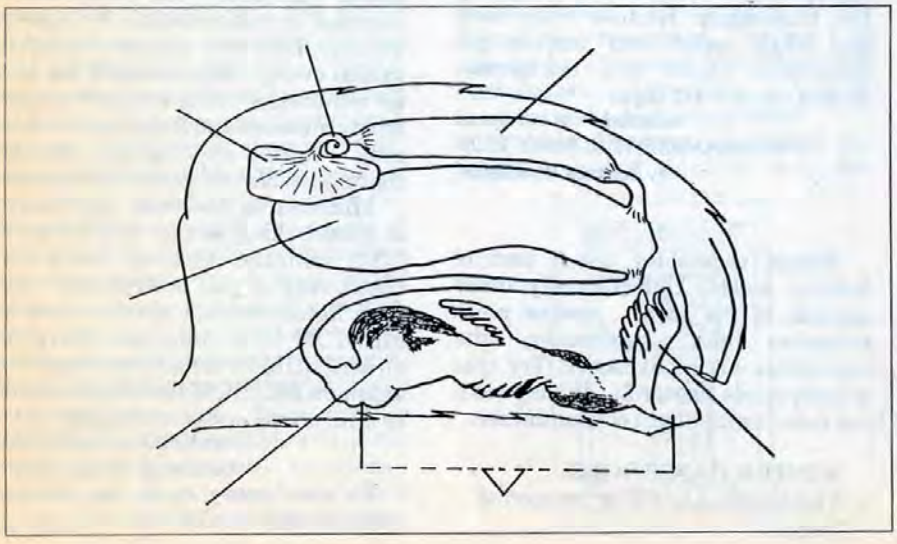
12. ____ The drone honey bee has ___ chromosomes.

A) 24, B) 28, C) 32, D) 16, E) 20

13. Listed below are several parts of the drone's reproductive system. Please label the diagram shown below with the correct parts. (Question is worth 8 points).

A) mucous gland, B) ejaculatory duct, C) testis, D) vas deferens, E) seminal vesicle, F) bulb of the penis G) bursal cornua, H) penis

Answers on Page 639.



TAYLOR... Cont. from Page 620

supplement generously whatever income he has. Such beekeeping is ideal, for example, for retired persons, who can provide themselves with a good cash supplement to their retirement income, year in and year out, and in a manner that fits in perfectly with that period of one's life. But best of all, it is this kind of beekeeping — intense, careful, fastidious with respect to quality — that will do more than anything else to restore honey itself to the prestige it once had. A sideline beekeeper, harvesting a crop of black locust honey, or basswood honey, or any of the other unique types, hardly thinks of himself as being in competition with producers of corn syrup. His product is in a class by itself. And when the general public again sees honey as being something in a class by itself, as it once was, then, I think, the bright future of beekeeping will be assured.§

Questions and comments are welcomed. Use Trumansburg address and enclose a stamped, addressed envelope for reply.

"FIDDLE-BUMPS" — Where Would Beekeepers Be Without Them?

By DR. JAMES TEW
The Agricultural Technical Institute, Wooster, Ohio 44691

"...little by little, computerized beekeepers are appearing. What surprises they are capable of, one can only guess."

I will always love my Model 6-1/2 "ERECTOR" Set. That was not a toy for kids, but rather a training tool for life. I didn't know that when I was 13 years old. Consequently, my set shows all the signs of a difficult life. Some of the parts are lost. I have duplicates of others. For those not familiar with the toy I'm describing, it was a kit containing various sizes and shaped pieces made from light gauge metal. All these parts were connected with small screws. As I think back now, there's really no telling how many of these small parts passed through the digestive system of the young owner.

Great things could be created with these sets. Bridges, sign posts, rocket launchers and other innovative contraptions were all tailor made for my electric train set. (I visited a toy store with my kids recently. There was not one Erector Set, Electric train or "BB" gun in the place. I don't know how kids survive now). Great wind mills, taking most of a day to assemble (a fact not over-looked by my Mom), and driven by the famous Erector Set Electric motor were imposing additions to our make-believe community. This placid life was overseen by a large, friendly Mulberry tree. Somewhere during those years, I became a hopeless "fiddle-bump".

I had planned to do the boring thing and give an official definition of a fiddle-bump, but imagine this, the term is not in the dictionary. I ask you to take one definition of the word to be, *"...a person who when given a mechanical device to understand, without instructions, will fiddle with it and bump it until it is fully understood"*. I can't give my Erector Set all the credit for bringing me to this end, but it was certainly a prominent tool in honing my quirk.

How many beekeepers must there be who have taken this quirk and fine-tuned it into an innovative skill? We've all seen them or their work at one time or another. One common forum for their presentation has long been the "Gadget Show" at National and Regional bee meetings. I cringe on those occasions when I'm asked to judge those entries. The diversity runs from devices to take the caps off honey jars to complex devices for removing moisture from honey with, seemingly, everything else in between. Due to show restrictions, it's not uncommon to have restrictions that restrict size and topics, but not to worry. There's another creative group that I want to address.

The second group takes the development of bee devices much more seriously. These are the people who have the trade skills, or talents, to do all that is necessary to construct an efficient honey house from odd parts. I have recently had the occasion to visit several beekeepers who have done nothing short of excellent jobs developing technology and techniques to make their small operations more productive. I have a lot of respect for these people and what they contribute to the industry. With costs of production going higher and no obvious end to the imports, one has to adapt to changing conditions and economize wherever possible if financial solvency is the goal. I know of beekeepers who have made ovens for liquifying honey from plywood and a thermostatically controlled space heater. There are others who have redesigned dairy equipment to perform honey processing tasks. Still others have modified plastic fertilizer tanks to serve as feeder tanks or settling tanks. Then there's the adaption that changes a two wheeled garden tractor into an all-terrain hive mover. The innovations could easily fill a book and result in interesting reading.

All attempts cannot be successful. A few weeks after a setback, however, the creative flair will return as it should. The radial extractor concept was tried and discarded many years before electric motors were around. A man couldn't turn a radial long enough to spin the honey out. The idea was tried during later years, and now, radial extractors are an accepted part of our industry. If at first it doesn't work, then try and try again (but wait awhile first).

Commercial beekeepers are probably accountants, welders, woodworkers, and electrical specialists before they are beekeepers. Those requirements are major aspects of the business. Some of the most efficient operations, from the field to the extracting plant, have been designed totally by the beekeeper. It's a strange situation to have someone, either a new beekeeper or sometimes a foreign beekeeper phone and ask where to purchase such systems. It's difficult to tell someone to go to dairy auctions, rummage around scrap yards and become a mechanical engineer, and sound academically professional all the while. I am not

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REPORT ON: THE AFRICAN BEE BARRIER PROGRAM

BACKGROUND

A team of ARS research leaders met in Beltsville, MD on March 17, 1986 with Dr. J.E. Wright, NPS. The purpose of the meeting was to review ARS research leading to the development of a barrier against Africanized bees (AB). The term "barrier" as used by the group refers to a Bee Regulated Zone (BRZ) with appropriate actions that ultimately could prevent the spread of Africanized bees.

It is expected that the AB will be arriving in Mexico in 1986 or 1987 and in the U.S. perhaps as early as 1989 or 1990. The impact of the AB on agriculture and public safety has been well-documented. The purpose of the meeting was to present strategies that could be implemented in Mexico. Although there can be no prior guarantee that AB can be stopped, the team agreed that a AB regulated zone should be established in Mexico. It is the recommendation of this team that this barrier be established in the state of Chiapas, Mexico.

CURRENT TECHNOLOGY SUPPORTING BARRIER DEVELOPMENT

Identification of Africanized Bees for Survey and Detection. Two methods are presently utilized for the identification of AB based on morphometrics. They are a laboratory procedure requiring 26 separate measurements and a field procedure using comb measurements and FABIS (forewing and weight measurements). FABIS is quick, simple and correctly identifies the large marjority of European and AB samples.

Drone Trapping. An artificial queen pheromone source is placed in a cone-shaped net nine or ten meters above the underlying vegetation. The queen pheromone attracts large numbers of drones into such traps in Africanized areas. Drone trapping has greatly reduced the reproductive potential of AB.

Drone Flooding. Colonies prepared specifically to rear large numbers of European drones were shown to effectively increase the mating of European queens with European drones in an Africanized area. The normal production of drones by all managed colonies can be significantly increased by the introduction of frames of drone foundation.

Bait Hives. Bait hives, having the scent of recently occupied nests, low internal temperatures (use of insulation and shade), and at least 40 liters of internal volume have had excellent success in attracting swarms. The efficacy of these bait hives are enhanced by the high swarming rate of AB, especially during the swarming season when such swarms are thought to travel short distances.

Bait Stations. Bait stations combining an attractant and food source can be used to attract foragers from colonies in the surrounding area for sampling bees. If AB are collected, bait stations could be used in conjunction with short-lived insecticides or chitin inhibitors to destroy feral colonies especially during dearth periods.

Human Resources. A person or office can be designated in each local area to monitor and receive reports of swarms. Project personnel would collect samples for identification, destroy the swarm and pay a bounty.

Quarantine. A quarantine can prevent the movement of managed colonies out of Africanized areas. Additional vigilance would be necessary to locate and destroy swarms "hitchhiking" on vehicles and to prevent deliberate transport of honey bees from the BRZ.

Chemicals. Several chemicals that have been studied have a potential to support the barrier technology. Carbaryl and ResmethrinR are both registered by the EPA for killing honey bees. Since both materials have residual toxicity they should not be used for bees on hive equipment.

CURRENT RESEARCH THRUSTS

Identification Methods. A Number of researchers and laboratories are pursuing improvement of existing techniques and the development of alternative methods for identification of AB. Classical morphometrics, cuticular hydrocarbons, nuclear and mitochondrial DNA, hemolymph proteins, antennal sensillae, isozymes, venom components and alarm pheromone components are all subjects of ongoing work.

Drone Trapping. Design improvement for traps that automatically kill drones and do not require individual attention are being developed. Additionally, studies are being conducted on trap placement with regard to spacing and height as well as optimum concentration and delivery system for the pheromone.

Drone Flooding. Current research on drone flooding focuses on developing guidelines for queen producers to allow successful matings with desirable drones in Africanized areas. This includes studies on number of drones required, placement of drone source colonies, mating flight patterns and drone production potential of feral colonies.

Bait Hives. Basic research on bait hives can be considered completed. However, opportunities exist for improvement in design and placement as well as methods to minimize the maintenance of bait hives.

Bait Stations. Functional bait stations have been developed that readily attract foragers. Assessment of the distance such stations are effective and recommendations for their dispersal in a sampling grid are underway.

Control of Parasitizing Queens. A central characteristic of the Africanization process is the parasitism of functionally or pheromonally queenless colonies by Africanized queens accompanied by tiny swarms. By determining how African queens are attracted to such colonies and developing queen traps it would be possible to reduce this parasitism.

Drone Congregation Areas. The easy identification of leks (drone congregation areas), would facilitate drone trapping and drone flooding techniques. Approaches to finding congregation areas with energy sources such as radar are underway.

Behavioral Modification by Genetics. Estimates of heritability and both phenotypic and genotypic correlations among characteristics have been calculated for a wide variety of traits including differences in honey production, defensive behavior, population dynamics, reproductive parasitism, etc. Selection for the important characteristics of defensive behavior and honey production confirms the long-term usefulness of this approach.

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BEE BARRIER... Cont. from Page 622

Behavioral Modification by Management. Management procedures to solve several problems caused by AB are in various stages of completion. Techniques to improve honey production using supplemental feeding and appropriate behavioral stimulation have been developed. Excessive swarming of AB has been shown to be controllable as well as a possible reduction of defensive behavior by alarm pheromone inhibition.

RESEARCH NEEDS FOR BEE BARRIER DEVELOPMENT (In Priority Order)

Drone Trapping.
Drone Flooding.
Bait Hives.

Inter- and Intra-Specific Competition. The potential exists for employing other species of Apis or subspecies of *A. mellifera* to out compete AB either genetically or behaviorally (e.g. competition for resources, or via mating advantage). The most promising candidate identified thus far is the subspecies *A . m. monticola* which needs to be studied as indicated here.

1) Conduct surveys to gather base line biological data on *A. m. monticola* in Africa (1986).

2) In Africa, conduct phenotypic response studies following reciprocal translocation with *A. m. scutellata* and *A. m. monticola*. In addition, conduct surveys on the diseases and parasites of *A. m. monticola* (1986-1987).

3) Export selected phenotypes to West Germany for propagation and further stock evaluation (1987-1988).

4) Conduct island experiments in the New World for intraspecific competition studies (1988-1989).

5) Introduce *A. m. monticola* in Mexico either in front of and/or behind the BRZ (1989-1990).

Africanized Bee Identification. Methods for identifying Africanized drones and queens should be developed.

Diseases and Parasites. Diseases and parasites may be useful in the destruction of AB in bait hives or extant in the BRZ. Diseases may be veneral (e.g. render the queen sterile) and spread by drones infected in special hives, placed in baited hives and lethal to adult bees, pupae, larvae or eggs, or applied as biological insecticides in the regulated zone. Similarly, parasites, for example *Mellitobia acasta*, known to infest queen pupae should be evaluated.

Bait Sections. Factors influencing the efficacy of feeding stations should be evaluated. These stations would be charged with a chemical, disease or parasite that could be carried back to the hive where it would weaken, reduce the reproductive capacity or kill AB swarms.

Queen Replacement. Improved methods to mark, locate and replace queens must be developed. One barrier strategy is replacement of queens in colonies that have become Africanized.

ONGOING RESEARCH ON AFRICANIZED BEES

Although the principle research effort on AB is being made by the ARS Honey Bee Breeding, Genetics, and Physiology Laboratory in Baton Rouge, a number of other ARS and University laboratories are also making contributions to the solution of this problem. This list is by no means intended to be all-inclusive but merely represent the collective imput from the team based on their personal knowledge.

ARS Laboratories:

Baton Rouge, LA.

1) Research on basic population and individual differences in bee behavior, development and response to pesticides between AB and European bees.

2) Evaluation and improvement of AB identification methods including morphometrics of F1 workers.

3) Genetic studies to determine modes of inheritance, heritability and phenotypic and genetic correlatons.

4) Commercial management studies to maintain European bees in an AB area.

5) Studies on estimating and reducing feral AB populations and

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TIP OF THE MONTH

Dear Uncle Beekeeper,

I received your annual Christmas package yesterday and want to thank you for your thoughtful gift. Were the jars of honey from your own hives? I am not certain how many jars there were in the box. I found two lids and a lot of broken glass. But since the box contained so much loose honey, along with the newspaper stuffing, it was a bit difficult to know just what else was in the box. I washed the honey off your enclosed Christmas card but all the ink ran so I am not sure just what the card said.

I hope you have a nice holiday season. I have to dash off now and wash the honey out of my mailbox or else the mailman won't deliver any more. He left me a nasty note. At least he didn't ask me to wash up his car seat.

Merry Christmas!
Your Sticky Niece

Since many beekeepers like to give honey at holiday times, perhaps a few suggestions on packaging for mailing might be helpful. After all the time and effort the bees spent in collecting nectar and turning it into honey, it would be a shame to lose it in some unnamed post office.

Use a SECTION of newspaper, not a sheet or two, for each jar. Or use some of the plastic "bubble" sheets — the kind that has bubbles that go "pop" if you pinch them. Wrap each jar as if it were a box. That is, wrap the paper around the sides and fold both ends over so that ALL of the jar is encased. Secure this wrap with plenty of tape. Since tape does not stick very well to plastic or to newspaper, wrap the tape all the way around once or twice, both around the middle of the jar and around end to end. A jar wrapped this way cannot slide out of its "casing".

Select a box that will hold all the jars of honey you wish to send but make certain that the jars can be nestled within some stuffing. If you are using newspaper, crumple individual sheets of newspaper and line the box before putting the jars inside. The plastic "bubble" sheets are a bit easier to use since you just line the box with a single layer of the sheet.

Make certain there is a layer of stuffing on top of the jars between the jars and the top of your box. If there is no rattle or bumping around of the jars, you can now secure the box with several all-the-way-around strips of filament strapping tape.

Don't forget the names and addresses!

If you have packed the jars well, soon after Christmas you will receive a letter of thanks for your delicious honey instead of the letter that begins this tip of the month.§

CHALKBROOD CLEAN-UP

By STEVE TABER of Honey Bee Genetics
3639 Oak Canyon Lane
Vacaville, CA 95688

"The following treatment works, it's easy and it's cheap."

Chalkbrood is becoming more of a problem every year, and as of now there has been no control of this disease. This article describes an effective control measure which you can apply to your bees when necessary

The disease, called chalkbrood, is caused by a fungus named *Ascosphaera apis*. Diseased larvae are mummified by the disease, some become black and some white. The white ones contain the asexual form of the fungus called mycelium while the black ones contain the sexual black fruiting bodies. Only bee larvae and prepupae contract the disease and some bees are more resistant to infection than others.

In our breeding work to develop lines of bees resistant to chalkbrood, we innoculate colonies with spores. Combs are then spread throughout the apiaries so that the few colonies we have headed by susceptible queens have become infected with the worst cases I have ever seen. In fact, this summer we had a colony that nearly died because of this disease. The following treatment was developed because of my efforts to rescue that colony and has been applied to many other heavily infected colonies since. It works, it's easy and it's cheap. Try it and let me know how it works with you.

Do three things for chalkbrood disease control:

1) Remove the present queen. You can cage her but I suggest killing her because her bees are susceptible. At any rate, have a caged queen in the hive, a new one or the occupant. After 8 days remove any queen cells.

2) When you remove queen cells at 8 days, check the combs for chalkbrood mummies. Most will be gone, however you should wait until all chalkbrood mummies have been removed from the combs before releasing the queen, and that has taken me as long as two weeks. Check the capped cells to be sure that they cover live brood (and not dead), by removing the caps from a number of cells. Look especially for cell caps that don't appear normal.

Apiary where chalkbrood resistant bees are being developed. Each box contains two nucs and all are headed by artificially inseminated queens. The nucs are on stands to facilitate working the bees and observations.

3) When no more mummies are contained in comb of the brood nest, release the caged queen. Then clean the bottom board.

Now then, look what you have done and what the bees have done. Bees, even very susceptible ones, will remove infected larvae quickly but they drop them on the bottom board where they usually are not rapidly removed. Any time adult bees are touching a mummy, they are picking up, carrying and spreading spores all around the hive. This is particularly true if those spore carrying bees enter and touch a larvae. So what you have done is to help the bees clean themselves up. You have removed the source of immediate infection. Adult bees are not continualy walking over, and in, chalkbrood, and pulling them from cells in the comb.

Bee colonies that have dirty bottom boards such as this are likely to have chalkbrood disease. The entrance to this unit is about 3 inches above the bottom, making it more difficult for the bees to remove the debris. However, resistant bees have clean bottom boards. This shows chalkbrood mummies, dead bees and frass of wax moth.

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HANDYMAN'S SPECIAL

By IGNACY FRYC and JOHN CALDER
41 1/2 George Street Fiji
St. Catharines, ONT L2R 5N7 South Pacific

So, you like to build your own equipment. Have all the tools, the room, the time and the skill to drive a nail? Well, we have a couple of unique items that you can whip up in your spare time and impress your friends with.

First, a frame spacer designed by Ignacy Fryc from Ontario Canada, that serves as both a 9 and 10 frame spacer.

Every beekeeper knows how important are equally spaced frames, not only in the brood chamber, but also in the honey collecting supers. In the brood super, uneven spaces between the frames — especially too big spaces — induce bees to build drone cells and also prompt them to bridge frames by building burr and bridge combs.

Some time ago, I designed and made one spacer for nine frames and another for ten frames. During my practice I discovered that it would be much more convenient if it were possible to design one spacer to serve both nine frames and ten frames.

Recently I had an idea of how to accomplish this. By making a spacer with eleven prongs (Drawing A,3) spaced 1.6 inches apart as for nine frames, I could use it for nine and ten frames in a super.

Drawing A83F shows how to use the spacer for ten frames. Insert the spacer across the frames under the angle of 25°. Applying it this way, the real space between the frames will be 1.45 inches which is the proper space for ten frames.

To use the same spacer for nine frames in super, insert this spacer, engaging only 10 prongs and leaving one prong outside the super. See Drawing A81F.

Materials needed: Hardwood, steel wire, .118" Dia. x 5-1/8" (1 prong), 5 hardwood screws - .8" x 3/4" long.§

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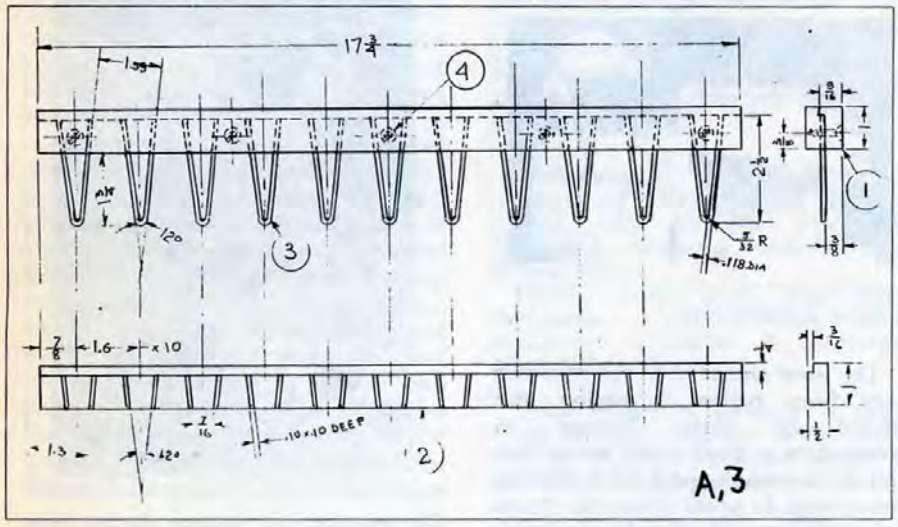

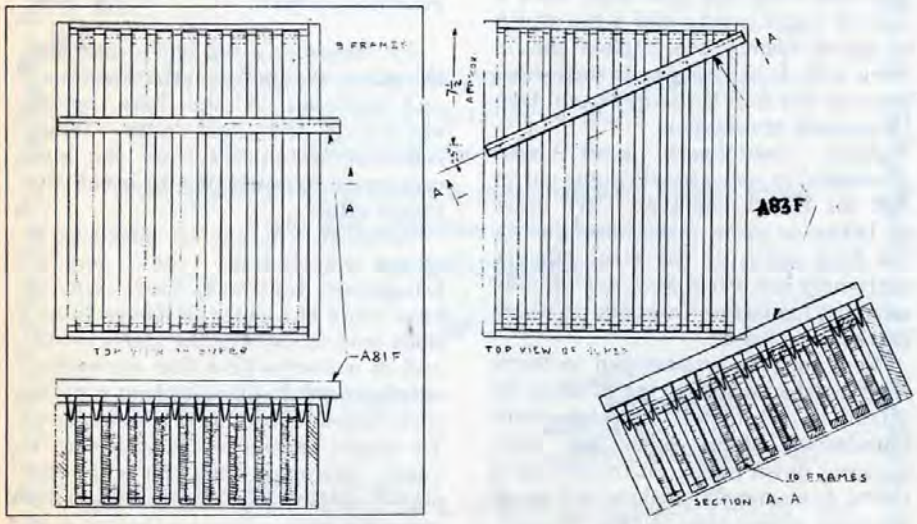

HANDYMAN'S... Cont. from Page 625

MASKING LOW COST HOBBY EQUIPMENT: USING THE KENYA HIVE

When I began my beekeeping hobby five years ago, I never thought twice about the type of hive to use. I read a few books, sent away for some supply catalogs, and with the help of a couple of friends I was on my way to become a beekeeper — Langstroth style. Soon I had spent about five hundred dollars for my five hive operation and still didn't have extraction equipment. A year ago I began experimenting with Kenya style top bar hives and had a revelation: *most commercial beekeeping equipment isn't necessary to begin beekeeping!*

The Kenya top bar hive, or "marimba hive", originaly was created for use in Kenya in the 1970's and is used extensivelty in beekeeping development efforts by the U.S. Peace Corps and other development groups. The hive is made from ordinary lumber and hardware for less than half the cost of a Langstroth hive. Though not as efficient as the Langstroth hive in honey production, you will find that a few Kenya hives will provide enough honey for family and friends, plus yield a small crop to sell. The Kenya hive is very practical for hobbyists interested in producing comb honey because all the comb is built by the bees, without wax foundation. There is a sense of satisfaction to be had by watching the colonies grow comb by comb. Kenya hives meet the criteria of being moveable frame hives where laws prohibit other types of hives.

The backyard beekeeper will find a Kenya hive an interesting addition to the apiary.

Understanding the Kenya hive requires an understanding of how bees build comb in the wild. Bees generally construct "U" shaped combs approximately 1-3/8" apart, attaching them to the roof and vertical walls of their hollow tree or rock cave hive. The bees rarely attach comb to the bottom or to walls that slope inward toward the floor. The modern beekeeper, however, needs to be able to remove individual combs of honey for inspection, dividing colonies, etc., and must be able to yield a honey crop without damaging the brood nest. The Kenya hive enables the beekeeper to perform these activities by encouraging the bees to build comb on strips of wood 1-3/8" wide and discourages unwanted comb attachment by sloping the hive walls inward.

The Kenya hive may be built at home with ordinary tools and only a minimum of carpentry skills. There are only two critical dimensions in its construction. First, it is important that the width of the top bars be *1-3/8"*, plus or minus an eighth of an inch. This helps to ensure that the bees will build only one comb per top bar. Secondly, the sides of the hive on which the top bars rest should slope inward so that the interior angle of the floor and the walls is about 120°.

A 'frame' of drawn comb.

The ideal size of a Kenya hive will vary from region to region, but should be large enough to accomodate a good sized brood nest and have enough space for a surplus honey crop. In areas where the brood nest consists of about ten deep Langstroth frames, a Kenya hive four feet long, one foot high, with a base of eight inches and a top width of about twenty two inches should work well. It has about the same hive area as one and three quarters deep Langstroth hive bodies.

Some beekeepers have been successful in using steel drums cut in half for Kenya beehives. Care must be taken to avoid direct sunlight on the hive walls, as the steel can get extremely hot. Steel does not provide as much insulation from temperature extremes as wood.

Bees may be encouraged to build their combs on the strips of wood by attaching a starter strip of comb foundation along each top bar, hanging down about an inch. I have heard that simply pouring a line of beeswax along the middle of each wood strip works, but have not tried it.

Introducing bees to a Kenya hive may be accomplished in much the same way as with a Langstroth hive. Hang a queen cage between two starter strips of foundation and simply pour in the bees. Package bee boxes may be placed inside the hive for a day or two. Feeding can be done by placing a container of sugar syrup inside the hive with enough small sticks or tall grass that the bees do not drown.

An advantage of the Kenya hive over the Langstroth hive for the hobbyist is that colonies can be examined with fewer bee stings. Unlike the Langstroth hive, where the beekeeper is exposed to ten or more frames of bees at a time, the Kenya hive may be examined with only a few combs exposed at a time. The top bars form a bee-tight seal.

The bee-tight seal between the top bars exposes the beekeeper to fewer combs of bees, and disturbs the colony less than traditional methods.

By removing a top bar at one end the other top bars may be examined and replaced in the hive before examining the next ones. When removing a top bar from the hive care must be taken not to break the fragile comb.

Although I'm not an advocate of queen excluders for general Langstroth hive use, they seem to have more of a place in Kenya hives. Bees tend to store honey above brood, and in a Kenya hive this sometimes results in a lot of frames that contain some brood with a lot of honey above. To obtain frames without brood, a queen excluder may be cut and placed vertically in the hive parallel to the top bars to restrict the queen to

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only part of the hive. Be sure the queen has access to the hive entrance for mating flights and releasing drones. Queen excluders may be made moveable so that the brood nest can be expanded or restricted by one or more combs as conditions indicate.

To harvest a honey crop from a Kenya hive the combs containing the capped honey must be cut from the top bars. Lift the top bar and brush the bees off, and then cut the comb about three quarters of an inch from the top bar into a bucket. A wet cloth should be handy to cover the bucket so the bees do not share your crop or drown themselves. Unless the bees are in need of the honey to winter on, all combs that consist largely of capped honey and have no brood may be taken. The bees usually have plenty of honey above and brood on the brood frames.

Back in the house the bucketfulls of drippy comb can be hand-crushed and strained through cheescloth or a nylon stocking. Preliminary filtering through a wire kitchen strainer reduces clogging of the cloth.

The removal and destruction of the wax comb means that the bees must rebuild comb before the next crop can be stored. The production of more beeswax by the bees lowers the honey yield. Approximately twenty two pounds of honey are stored by bees in one pound of wax comb, and bees consume about eight and one half pounds of honey to produce one pound of wax. From this alone the honey crop can be expected to be about one fourth less in a Kenya hive than in a Langstroth hive at the same location. My limited experience indicates the yield to be closer to 40% less. Perhaps this is due to the tendency of the bees in the Kenya hive to have a smaller brood nest and colony size.

I have sold my Langstroth hives and am currently a U.S. Peace Corps volunteer in the South Pacific, in Fiji, helping develop a local honey industry. When I return to being a hobby beekeeper again in the United States I plan to start with low-cost Kenya hives.

The lower cost of Kenya hives puts beekeeping within the reach of many more would-be beekeepers, particularly youngsters. The Kenya style beekeeper will still need some beekeeping tools such as a smoker and a veil, but most other material may already be around the house.

If you are the kind of beekeeper who enjoys experimenting and watching your bees, the Kenya hive can be an excellent addition to your apiary. Also, if you plan to start beekeeping, or have the oportunity to help someone else who is, remember that beekeeping does not mean just Langstroth hives.§

References:

Coggshall, William L. and Roger A. Morse, 1984. *Beeswax Production, Harvesting, Processing and Products.* Wicwas Press.

Gentry, Curtis, 1982. *Small Scale Beekeeping.* U.S. Peace Corps Information Collection & Exchange, Manual M-17.

John Calder is currently a Peace Corps volunteer beekeeper in the South Pacific, assisting the Fijian people in self-sufficient honey production.

TABER... Cont. from Page 624

Yes, there are lots of spores remaining in the hive with this treatment and chalkbrood will probably reappear. But in our experience here it has reduced the amount of chalkbrood on a center brood comb from a count of 100 plus to less than 1. When you have several hundred cells occupied by chalkbrood mummies it means that those larvae did not develop into live adults, moreover, the bees remaining have to do other work than what you want them to do. They have to get rid of the mummies. You have not only lost bees that should be alive, you have lost work effort by the bees that did live.

I think that in very susceptible bees, mummies are removed in about a week. In resistant bee colonies, mummies are either not formed because the bees recognize the sick larvae and remove them or mummies are formed and removed within a day or two. There seems to be several forms or mechanisms of resistance to this disease and future research will have to find out which is the most effective.

This method of cleaning up dead brood in a hive is not original with me as it was suggested as a method for cleaning up EFB back about 70 some years ago. Unfortunately, I don't know who it was that first came up with this technique and if any of you old time beekeepers out there remember, please let me know.§

SMALL BUSINESSES AND NEW TAXES

Occasionally we run across an article or idea that will affect not only beekeeping, but the people who keep bees as well. Taxes do affect the business of beekeeping, but the new Tax Reform Act of 1986 is going to affect you whether you're a hobbiest, sideliner or big business. So, whether you agree or disagree with the new laws' provisions, you had better be aware of and understand how it will work.

Presented here are salient provisions of the newly enacted Internal Revenue Code of 1986 as the new Act will be known.

Investment Credit. The present investment credit for both vehicles and capital equipment is eliminated, *retroactively* to January 1, 1986.

For those with carry-over credits the bad news is that the transition rules provide for a reduction of 35% for 1987 and 17-1/2% in 1988.

Depreciation. Under existing law you can deduct 25% of an automobile's cost the first year, 38% the second year and 37% in the third year. An auto purchased after April 3, 1985 is considered in the luxury class if its cost was $12,800 or more. First year depreciation was $3,200, second year $4,800, third year $4,800 fand the balance depreciated until entire cost was recovered.

If you are using the automobile in your business (and we'll assume that it is 100% for business) you can continue to deduct depreciation as outlined above for 1986 and for all subsequent tax returns.

Fixtures, machinery and related business fixed assets subject to depreciation used 15% the first year, 22% the second year, and 21% for the third, fourth and fifth years.

Here again, for any assets placed in service prior to December 31, 1986, you can continue to take depreciation as heretofore. (Note: under ACRS rules taxpayers could elect not to use accelerated depreciation and could elect special straight line method.)

Automobile, light trucks, special technological equipment and other items now fall into a new five year class.

Depreciation for such items placed into service after December 31, 1986 will be depreciated over the five year period on a 200% declining balance method. i.e., $10,000 assets depreciation will be 40% or $4,000 the first year, $2,400 the second year, $1,440 in year three, $864 in year four and $522 in year five.

Similar adjustments with new yearly lives are established for assets placed into service after December 31, 1986.

Real Estate. Where real estate is used in a trade or business it can continue to be depreciated under old rules (and use of lives) if placed into service prior to January 1, 1987.

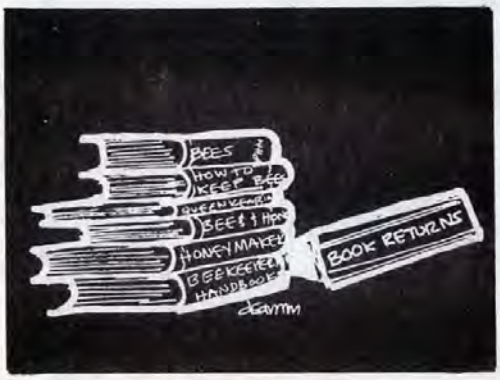
Non-residential real estate placed into service after December 31, 1986 will now have to be depreciated on a straight line basis of a 31-1/2 year life span.

On disposition of real estate there will be no recapture of depreciation.

Expensing of Equipment. Under present law you can elect to expense the first $5,000 of equipment purchased in 1986. The new law raises this to $10,000 for purchases made after December 31, 1986 if the firm has less than $200,000 of tangible personal property.

Business Travel. Deductions after December 31, 1986 are curtailed for educational travel, and cruise ship and other luxury water travel is limited to two times the Federal per diem rate. There will be certain exceptions.

Net Operating Losses. Years ago the IRS attacked the outright selling of net operating losses. Now if there is a 50% change in ownership there will be restrictions placed on NOL being carried forward.



Dividend Income Credit. Present law allows a corporation to reduce its dividends received form domestic corporation by 85%. This figure after December 31, 1986 will be reduced to 80%.

Corporation Tax Rate. Through June 30, 1987 the top rate will be 46%, thereafter it drops to 34%, giving a yearly average of 40%.

Solar Energy. Install devices in your business premises qualifying for the credit will entitle you to 15% cash credit in 1986, 12% in 1987 and 10% in 1988.

Capital Gains. The corporate capital gain rate is set at 34% for tax years beginning after December 31, 1986.

Accounting Methods. Where inventory is a material factor in determining a taxpayer's taxable income, the accrual method of accounting must be used. Others had an option of using the cash method or the accrual method.

The new law provides that corporations or partnerships with a C corporation as a partner must be on the accrual basis (picking up income and expenses when incurred, not when paid).

Exceptions to this rule are farms, qualified personal service corporations and entities with average annual gross receipts of less than $5 million.

LIFO Inventory. Firms doing less than $5 million in average annual sales can use the simplified dollar value LIFO method. Check with your acountant to see if the simplified method can help you.

New Medical Expense Deduction. A self-employed person, one who usually loses out on most fringe benefits, now finally picks up one. The self-employed taxpayer can deduct 25% of the cost of medical insurance, limited to the net earnings of the business. This means that the inclusion of this new expense cannot give rise to a loss. Catch: The taxpayer cannot be covered by a plan of another employment, nor of a spousal plan. Note that a partner is considered to be self-employed.

IRA Investments. Years ago a prohibition was enacted into law stating that IRA funds could not be invested in collectibles. Beginning January 1, 1987 an IRA can be invested in gold and silver coins minted by the U.S. Government.

Reporting Rules. Your employees must give you a new Form W-4 before January 1, 1988 or

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you'll have to take withholding based on only one allowance for a single person, two allowances for a married person.

Real Estate Depreciation. Own residential property? You should continue to deduct depreciation under old rules. But for property placed into service after December 31, 1986 the write-off is based on 27-1/2 year life, computed on straight line basis.

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Up to now we have concentrated on those rules and changes specifically relating to business enterprises.

Sweeping changes in rates, handling of certain types of income, and deductibility of specific disbursements have great impact on individual tax liability.

• The two-wage earner credit (Schedule W) to eliminate some portion of marriage penalty is eliminated after December 31, 1986.

• Income averaging over a four year period is likewise eliminated after December 31, 1986.

• The 10-year income averaging for lump-sum distributions from pension plans is replaced in 1987 by a 5-year average. But distributions can still be rolled into an IRA to defer taxes.

• Earned income credit has new 14% of first $5,000, with maximum credit of $800.

• Unemployment insurance is now fully taxable after December 31, 1986.

• There are no longer deductions allowed for state or local sales taxes, after December 31, 1986.

• The medical expense disallowance is raised to 7-1/2% of the amount of adjusted gross income for years after December 31, 1986.

• Moving expenses no longer deducted from adjusted gross income on page 1. They now must be taken on Schedule A, itemized deductions. (Not subject to new 2% rule.) This too for 1987, not 1986.

• Other deductions such as investment data expenses, tax preparation, safe deposit box, union and professional dues, work clothes, etc. will likewise be shown on Schedule A as heretofore, but now will be reduced by 2% of adjusted gross income figure. For 1987.

• Political contributions after December 31, 1986 will no longer be deductible.

• The $100 dividend exclusion for singles, $200 for marrieds filing jointly will be eliminated after December 31, 1986.

• IRAs now have new rules. Those who are covered by a qualified pension or profit sharing plan, or a Keogh, or a 401K, who earn over $25,000 if single, $40,000 if married, face restrictions. For each $5 of taxable income over the threshold, $1 of the IRA contribution will not be deductible. Those with income over $35,000 if single, $50,000 on joint return will get no deduction at all. If married, your spouse being in a plan will affect your right to the deduction.

• Interest deductions for consumer interest loans will be phased out. 65% deductible in 1987, 40% in 1988, and 20% in 1990.

• Have children over 5 years of age? Claim them as a dependent? You need to get them a social security number as you'll need to show this on returns filed in 1988 and thereafter.

• Start now to get into habit of keeping records of all non-taxable or exempt income. Beginning in 1988 this will have to be shown.

• Capital gains taxable will be taxable on full amount in 1987, not 60/40 split as now. But rate for 1987 will be set at 28% even if taxpayer is in higher bracket. Losses in excess of profits in 1987 will be deductible without cutting them in half. $3,000 rule stays.§

HOW AND WHERE TO GET BUILDING OR EQUIPMENT MORTGAGE MONEY

No matter what money costs, you will need it to finance replacement of equipment, acquisition of new equipment, or to construct or buy real estate. The price you pay is not only dependent on current economic conditions, but also on how astute a shopper you are. Price tags are not always the same and listed herein are some suggestions of places where to obtain money and how to shop for lowest rates. Remember: Money is a commodity and you "rent" or "buy" it like everything else.

Commercial Banks. The bank with which you carry your checking account and have a history of borrowing is the most logical place to start. Meet with bank officials and inform them of your plans and show them your need for expansion. Have financial statements for prior periods to show the increase in business and be prepared to talk about the expected growth if the additional equipment is obtained, or if additional physical facilities are built.

In reality, there are no "fixed" rates and the amount you will pay will depend on your bargaining ability (consider bringing along your accountant or lawyer, or both), your past relationship, the size of your average balance, and your personal relations with bank officials.

To cut costs of long term borrowing, offer to give a personal bond (or note) in addition to the usual real estate mortgage.

Savings Banks and Savings and Loan Associations. These are excellent sources of mortgage money because for the most part, these institutions are prohibited from making personal loans or ordinary business loans.

Arrangements can be made for a "mortgage committment" — an arrangement wherein you contract for a contractor to erect your building (or addition to present structure) and have monies released by the bank as construction progresses. Your interest obligation is based on the monies actually advanced, not on the amount of the committment. And, usually you don't have to make any payments on account of principal until the completion of construction.

Rates are negotiable and again, you have to do some rate comparison with neighborhood institutions and do some haggling.

State or Local Agencies: In many communities you'll find municipal or state development agencies. These agencies want to increase local employment, enlarge production and sales facilities, and generally generate dollars for spending.

If you can prove that the building or addition you want to construct will increase employment and generate purchasing power in the area, you'll be eligible for low-cost, long-term, development loans. And, an added feature. In some localities you can get a special exemption from real estate taxes.

For information of programs in your community call your local municipal offices for information, and call or write to your state's department of commerce.

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Rates are set by law and you can't "shop" — but there is no need to. The development program is geared to offer a rate that is subsidized.

Small Business Administration. The U.S. Small Business Administration (SBA) is a federal agency whose purpose is to help people begin and remain in business. The SBA advocates programs and policies that will help small business and provides new and existing businesses with financial assistance, management counseling and training, and procurement assistance on government contracts, etc. The SBA also has special programs for women, minorities, the handicapped, and veterans.

Most of the regular SBA loans are made by private lenders and then guaranteed by the SBA. The average size of a guaranteed loan is $100,000 with a maturity of less than 10 years.

The SBA also provides the following types of special loans: local development loans, small contractor loans, seasonal credit loans and handicapped assistance loans.

Disaster assistance is provided by the SBA in the form of: physical damage natural disaster recovery loans, economic injury natural disaster loans and pollution control financing.

All of the foregoing suggestions are those that you as a business owner can handle yourself, with the aid of your staff, and your outside professionals — accountant and lawyer. But there is some free help available. You can use the Government program of S.C.O.R.E. — (Service Corps of Retired Executives). There are more than 2,000 talented, trained, retireees available to help small businessmen with problems. There is no charge for the first 90 days of counseling. More information about this organization can be had from your local office of the SBA.§

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fields were his best source. The rain prevented timely cuttings and allowed the bees to feast on fields in full bloom. The rain was detrimental to the cotton flow; it was even lower than usual.

In the northern part of the state, yield was somewhat above average with alfalfa and sweetclover the best performers. The slightly cooler-than-average summer may have been responsible for the downturn in saltcedar production. It quit early. The mesquite got rained on, which always shuts it down for nectar production. One of our premier honeys, called "sage" by the beekeepers, was not produced in quantity. It is from a plant called broom dalea, *(Dalea scoparia)*. This year it was just too warm at about the time it comes into second bloom in August. There was no wild buckwheat this year. Sometimes, it produces nectar late in the year, September and beyond.

Overall, except for pesticide losses, we have few complaints about the 1986 honey season in New Mexico.§

A BEE HUNT

By CARL C. EGOLF
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The beautiful forest in which we were encamped abounded in bee trees; that is to say, trees in the decayed trunks of which wild bees had established their hives. It is surprising in what countless swarms the bees have overspread the Far West, within but a moderate number of years. The Indians consider them the harbinger of the white man, as the buffalo is of the red man; and say that, in proportion as the bee advances, the Indian and buffalo retire. We are always accustomed to associate the hum of the bee-hive with the farm house and flower garden, and to consider those industrious little animals as connected with the busy haunts of man, and I am told that the wild bee is seldom to be met with at any great distance from the frontier. They have been the heralds of civilization, steadfastly preceding it as it advanced from the Atlantic borders, and some of the ancient settlers of the West pretend to give the very year when the honey bee first crossed the Mississippi.[1] The Indians with surprise found the mouldering trees of their forests suddenly teeming with ambrosial sweets, and nothing, I am told, can exceed the greedy relish with which they banquet for the first time upon this unbought luxury of the wilderness.

At present the honey bee swarms in myriads, in the noble groves and forests which skirt and intersect the prairies, and extend along the alluvial bottoms of the rivers. It seems to me as if these beautiful regions answer literally to the description of the land of promise, "a land flowing with milk and honey"; for the rich pasturage of the prairies is calculated to sustain herds of cattle as countless as the sands upon the sea-shore, while the flowers with which they are enamelled render them a very paradise for the nectar-seeking bee.

We had not been long in the camp when a party set out in quest of a bee tree; and, being curious to witness the sport, I gladly accepted an invitation to accompany them. The party was headed by a veteran bee hunter, a tall lank fellow in homespun garb that hung loosely about his limbs, and a straw hat shaped not unlike a bee hive; a comrade equally uncouth in garb, and without a hat, straddled along at his heels, with a long rifle on his shoulder. To these succeeded a half dozen others, some with axes and some with rifles, for no one stirs far from the camp without his firearms, so as to be ready either for wild deer or wild Indian.

After proceeding some distance we came to an open glade on the skirts of the forest. Here our leader halted, and then advanced quietly to a low bush, on top of which I perceived a piece of honeycomb. This I found was the bait or lure for the wild bees. Several were humming about it, and diving into its cells. When they had laden themselves with honey, they would rise into the air and dart off in a straight line, almost with the velocity of a bullet. The hunters watched attentively the course they took, and then set off in the same direction, stumbling along over twisted roots and fallen trees, with their eyes turned up to the sky. In this way they traced the honey-laden bees to their hive, in the hollow trunk of a blasted oak, where, after buzzing about for a moment, they entered a hole about sixty feet from the ground.

Two of the bee hunters now plied their axes vigorously at the foot of the tree to level it with the ground. The mere spectators and amateurs, in the meantime, drew off to a cautious distance, to be out of the way of the falling of the tree and the vengeance of its inmates. The jarring blows of the axe seemed to have no effect in alarming or disturbing this most industrious community. They continued to ply at their usual occupations, some arriving full freighted into port, others sallying forth on new expeditions, like so many merchantmen in a money-making metropolis, little suspicious of impending bankruptcy and downfall. Even a loud crack which announced the disrupture of the trunk failed to divert their attention from the intense pursuit of gain; at length down came the tree with a tremendous crash, bursting open from end to end, and displaying all the hoarded treasures of the commonwealth.

One of the hunters immediately ran up with a wisp of lighted hay as a defense against the bees. The latter, however, made no attack and sought no revenge; they seemed stupefied by the catastrophe and unsuspicious of its cause, and remained crawling and buzzing about the ruins without offering us any molestation. Every one of the party now fell to, with spoon and hunting knife, to scoop out the flakes of honeycomb with which the hollow trunk was stored. Some of them were of old date and a deep brown color, others were beautifully white, and the honey in their cells almost limpid. Such of the combs as were entire were placed in camp-kettles to be conveyed to the encampment; those which had been shivered in the fall were devoured upon the spot. Every stark bee hunter was to be seen with a rich morsel in his hand, dripping about his fingers, and disappearing as rapidly as a cream tart before the holiday appetitie of a schoolboy.

Nor was it the bee hunters alone that profited by the downfall of this industrious community; as if the bees would carry through the similitude of their habits with those of laborious and gainful man, I beheld numbers from rival hives, arriving on eager wing, to enrich themselves with the ruins of their neighbors. These busied themselves as eagerly and cheerfully as so many wreckers on an Indiaman that has been driven on shore; plunging into the cells of the broken honey combs, banqueting greedily on the spoil, and then winging their way full freighted to their homes. As to the poor proprietors of the ruin, they seemed to have no heart to do anything, not even to taste the nectar that flowed around them; but crawled backward and forward, in vacant desolation, as I have seen a poor fellow with his hands in his breeches pockets, whistling vacantly

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BEE HUNT... Cont. from Page 631

and despondingly about the ruins of his house that had been burnt.

It is difficult to describe the bewilderment and confusion of the bees of the bankrupt hive who had been absent at the time of the catastrophe, and who arrived from time to time, with full cargoes from abroad. At first they wheeled about in the air, in the place where the fallen tree had once reared its head, astonished at finding it all a vacuum. At length, as if comprehending their disaster, they settled down in clusters on a dry branch of a neighboring tree, whence they seemed to contemplate the prostrate ruin, and to buzz forth doleful lamentations over the down fall of their republic. It was a scene on which the "melancholy Jacques" might have moralized by the hour.

We now abandoned the place, leaving much honey in the hollow of the tree. "It will be cleared off by varmint", said one of the rangers. "What varmint?" asked I. "Oh, bears and skunks, and racoons and 'possums. The bears is the knowingest varmint for finding out a bee tree in the world. They'll gnaw for days together at the trunk till they make a hole big enough to get in their paws, and then they'll haul out honey, bees and all."

[1] Richard Edwards, Great West and her Commercial Metropolis (St. Louis, 1860), 590. According to a note in Edwards' book, the first swarm of bees to appear in St. Louis settled in Mme. Chouteaus's garden in 1792.

This account occurred on October 13, 1832 and is a chapter from A Tour on the Prairies, by Washington Irving, Edited and With an Introduction Essay by John Francis McDermott. New Edition copyright 1956 by the University of Oklahoma Press.

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Dadant's "THE HIVE and the HONEY BEE" indicates, "...Records of the establishment of honey bees in North America do not start until 1638....", and, "...Honey bees were not introduced to the west coast of North America until the 1850s, when they were landed in California; from there they were taken to Oregon, and thence to British Columbia...".

The footnote in Irving's above chapter informs us, "...the first swarm of bees to appear in St. Louis settled in Mme. Chouteaus's garden in 1792".

Thus, the honey bee had known distribution in North America, or areas east of the Mississippi River between the years 1638 and 1792, by way of natural migration (swarming), overland transportation by wagons as settlers relocated moving westward, and river-boat transportation as immigrants and supplies moved inland from seaports-of-entry.

Of significant interest is the fact at the time of October, 1832 during the expedition of 100 U.S. Rangers along with several civilian personnel, including Washington Irving, the western frontier, which became known as Indian Territory and then eventually the State of Oklahoma, was uninhabited by humans, except by roving Indian hunting parties and an occasional white hunter or trapper.

Fort Gibson on the Neosho River near its confluence with the Arkansas River in the eastern part of the now State of Oklahoma, was, at that time, the western military outpost in that territory. There is no reference to honey bee colonies at Fort Gibson, but we might assume that colonies were brought to Fort Gibson, from which numerous swarms issued, progressing westward, well in advance of pioneer settlers.

The "Bee Hunt" on October 13, 1832 occurred in frontier wilderness in an area west of now metropolitan Tulsa, Oklahoma, near and on the north side of the Arkansas River. In current interstate highway routing, Tulsa is approximately fifty-two miles northwest of Fort Gibson. One can speculate upon the time required for not only one, but at least twenty "bee tree" colonies to become established that distance from their possible source of Fort Gibson.

In the following chapter of Irving's book, "A Tour on the Prairies", we read, "...the surrounding country, in fact, abouded with game, so that the camp was overstocked with provisions, and, as no less than twenty bee trees had been cut in the vacinity, every one revelled in luxury...."

Imagine — twenty bee trees cut down in one camp area of this expedition! Consider then the number of "bee trees" that existed in the wild, unsettled territory of Oklahoma in the same radius of Fort Gibson!

We can then visualize the advanced westward progression of the honey bee into sustaining habitats, where its contribution to the pollination and profusion of wild herbs and fruits eased and sweetened the lives of early pioneer settlers.

We also then understand the American Indian's familiarity with, and reference to "...the white man's fly!"§

TEW... Cont. from Page 621

belittling our industry or the people who make these changes. For a small specialized industry such as ours, it takes innovation to supplement the bee industry constructed equipment. This gives rise to a very elite group of modifiers that change or re-design commercially manufactured equipment. Flow switches, sensors and heating devices are all common changes that one could expect from this group of innovators.

And now, little by little, computerized beekeepers are appearing. What future surprises of which they are capable, one can only guess.

Now please, look at these innovators as a group. Beekeepers working on little projects — beekeepers working on big projects — all to keep our industry the best in the world. I wish them nothing but the best of luck. I'll bet most of these premier fiddle-bumps had Erector sets when they were kids.§

(Note: If in fact, you are working on computer programs that you wouldn't mind sharing, I would like to hear from you. I am working on future articles on beekeeping and computers and your suggestions and input will be appreciated. Nothing will be pirated and, if you agree to allow your material to be used, you will be given credit. Thank you. JET)

STAYING AHEAD BY LOOKING BACK

By HOLLIS A. WILKINS
21 Bridge Street
Chelmsford, MA 01824

Over the years one reads and hears of many varied and sometimes helpful methods of obtaining crops of honey and managing colonies of bees. I, for one, am greatly indebted to the many writers of fine articles read in "Gleanings" and other publications. Being a backlotter gives one the chance to experiment with some of these various methods without investing a lot of money and effort as in commercial beekeeping.

One of my greatest joys is to read over the many fine publications from the past, book and periodical alike. Many of the methods discussed were fine for that time period but would be impractical today in our fast-moving and time-pinching mode of living. Still, backlotters can experiment with many such methods and sometimes thereby improve our management and production techniques.

Men such as Killion, Miller, Deyell, Pellett and Shaw, to say nothing of later beekeepers such as Taylor, and the Morses have contributed much to the enjoyment and art of beekeeping. The expertise of these men, both past and present, can help us over the rough spots. We can all learn from their past experiences. Being from the New England area the writings, both past and present, of Mr. Mraz of Vermont have especially been of great value to me. New England certainly has it's share of every-changing weather plus the unrelenting expansion of suburbia and industry.

Each year more and more bee pasturage is lost to building, but we try to take advantage of the flows that we get by better management and closer attention to the sometimes minor details that were let slide in years past. Times change but basically the bees themselves don't. We should learn to work *with* them in their basic needs for survival so that a decent honey crop can be obtained and yet provide them with their own needs such as adequate housing, a chance to build up properly and a plentiful supply of stores upon which to winter. We should see that our colonies are kept strong that they may fight disease and predators.

Section comb honey and the men who produce it have always held a fascination for me. Truly it is a fine, natural product — stored, preserved and capped by the bees ready for their consumption or ours. You just can't beat a white capped section in a wooden container for eye appeal. We surely must not let this excellent product of the hive fall by the way. Yes, I know the round section surrounded by plastic is perhaps easier to produce and has it's own appeal, but for the backlotter with a flare for the older ways, it can still be a challenge, and a chance to feel closer to those beekeepers who made up part of our heritage. More sales promotion is needed to educate the younger honey consumer to the fact that comb honey is such a fine, natural food.

One way for the backlot beekeeper to raise some section comb honey along with his or her extracted and bulk comb each season is to use a standard shallow super with a drawn, light colored extracting comb on each side of the super and 24 4"x5" sections between them, each row of sections separated by the "M" fences. Super springs on one side will hold all

Section comb honey, ready for harvest.

in place securely. The bees will move into the super quicker, drawn by the combs and then move from these to the sections, filling and capping the sections nicely. With luck and a good flow a full 24 sections will be the result, all capped and well filled.

In New England we have an early flow from dandelion and fruit bloom so I place one or two shallow supers on strong colonies in late April to catch this flow, both to provide more room for bees and to help prevent swarming. When the main flow starts, the colonies will have honey in the extracting supers, which I failed to mention, are over a queen excluder, and then when the sections are put on will quickly move up into them. The 4" x 5" sections can still be obtained from one dealer at present, possibly more that I don't know about. The same setup can be made up using 4-1/4" sections and the 4-1/2" half-depth frame in a standard section comb super. The Killion comb super was available some years ago and were very good, these were of the "T" type, using "T" shaped tin holders to support the sections rather than wood section holders. I still have a number in use. These provide bee clustering space as well as ventilation on all sides.

Miller, or Killion type bottom board with rack.

In my opinion the 2" deep Miller or Killion type bottom board with rack has proven to be of help in improving ventilation in the hives during the hot summer months. In fact, this setup is left in place year-round. I also use nine frames in each brood chamber with a follower or dummy board on each side. These follower boards aid in removing that first frame with inspecting and also provide a clustering space for the bees on the sides near the walls.

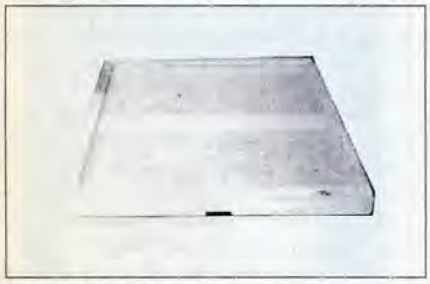
The use of metal hand grips made of sheet metal and nailed over the factory routed hand (or rather finger) holds have aided me greatly

Koover's hand holds

Continued on Next Page

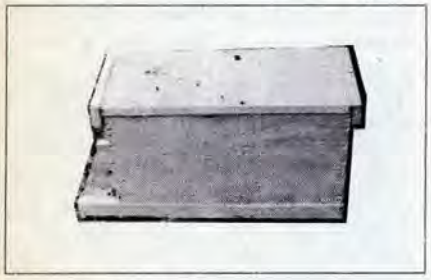
STAYING ... Cont. from Page 633
over the years. Charles Koover, in one of his fine articles back in the sixties, explained their construction and I owe him a debt of gratitude. Nearly all of my supers have these grips installed on them. As one gets older, such aids help to keep your 'running gear running' with less strain. Many of these supers are twenty years old and still functioning well. Personally, I have never got around to using them on deep bodies, but feel that if properly nailed, they should work fine as the brood chambers are not moved around that much in the course of a season.

The double division screen or inner cover with screening on each side of the escape hole is another useful item for the backlotter to have. They can be used for requeening colonies or starting new colonies by dividing a two story colony in the spring.



A double division screen.

Another useful piece of equipment the backlotter might have in the apiary is a nuc box, maybe several, if



A typical 4-frame nuc.

one has a number of hives. These are used to keep on hand a supply of queens for replacement of any lost in the course of a season. My own nucs are of the four frame size and made up in my cellar. Frames of brood are taken from strong colonies, with bees adhering and put into the boxes, usually in early May. Either a comb with a queen cell attached or a queen from the south is put into each nuc at this time. Bees from different hives will mingle together without fighting, but the older bees will return to their own colonies in short order. Queens should be ordered from the south to arrive when you are ready to perform this operation. Some colonies at this time of year will be prepar-ing to swarm and a capped queen cell will be available for this purpose. Place an empty comb or a frame of foundation into the slot where the frame of brood and bees was taken from will help to prevent swarming if done before the bees have made advanced preparations. Be sure you have some honey on the outside combs of the frames you are placing in the nucs to tide the new colony over until they get established. Blocking the small entrance with grass for a couple of days will help to keep out robbers, but don't block too tightly.

The beekeeping industry has it's problems today, such as mites, foreign honey competition and the threat of Africanized bees, but if we, as small beekeepers, will work along with the commercial men and packers to help solve our problems, in time we should overcome these obstacles. The backlot beekeeper can help by making sure that the finished product put on the market is clean and attractive. We should strive to promote the use of our healthful, natural hive products at every opportunity, but let's not get carried away with wild claims that have not been proven over the years.

We have had handed down a heritage from the many fine beekeepers of yester-year and it is up to us to carry on their love for the out-of-doors and the fine art of beekeeping in all its many forms.

At times it pays to *look back* as we strive to *advance* our knowledge. These beekeepers of the past had their problems in their day and were plagued by seemingly unsolvable situations. Relive once again the heyday of the comb honey era and many other fascinating subjects, and re-learn a few pointers that can be used today.§

WASHINGTON SCENE:

By GLENN GIBSON
Minco, Oklahoma 73059

"In a number of ways this Congress could be called productive, but it could also be labelled inefficient, extremely partisan and the most fractious Congress in recent years."

On Saturday, October 18, the 99th Congress became a part of history. Earlier plans called for adjournment on October 3rd. In a number of ways, this Congress could be called productive, but it could also be labelled inefficient, extremely partisan and the most fractious Congress in recent years. We were deeply concerned about the fate of our honey loan program when the appropriation bills cleared the House. Ordinarily the 13 appropriation bills are handled separately by appropriation subcommittees where they will be given careful consideration before going to the floor. When time for adjournment neared and none of the 13 appropriation bills were approved, the 99th Congress came up with a "continuing resolution" that would authorize the expenditure of $576 billion for fiscal 1987. This bill, HJR 738, weighed 18 pounds.

Handling appropriations in a lump sum with a continuing resolution means that the Appropriations Committees were bypassed. Also, this method gave all members an opportunity to pork-barrel and kill unwanted programs with all sorts of amendments at a time when most members were anxious to wind up the year's business and get busy with a campaign for reelection. Not the best climate for carefull handling of the appropriation bills.

$250,000 LOAN CAP FOR HONEY

Continuing resolution HJR 738 included an amendment by the Honorable Silvio Conte that would limit loans to individual producers to $250,000. Now this amendment will disturb few producers since most beekeepers production is well below that figure. A few of our larger producers will be faced with selling a percentage of their crop on the open market at world prices. We have no figures that will tell us how many producers or how much honey would be thrown on the market at world prices. Regulations covering this amendment will be published in due time by the Department of Agriculture. Further information on the subject can be receivec from the local ASCS office or the Department of Agriculture in Washington.

AMENDMENT FOR "BEE BARRIER" RESEARCH

Senator Charles Mathias, Maryland, introduced an amendment to the continuing resolution that would earmark $1 million of agriculture funds to be used to curb the advance of the Africanized or Killer bee. This resolution was approved by the Senate, but did not survive the conference committee. However, the conferees added language to the conference report expressing the Congress' concern and directing the USDA to conduct additional study with *available* funds and to make recommendations for action to the Congress next year. In a Senate speech dated October 16, Senator Mathias expresses his disappointment over the denial of the funding.

Excerpts of the Senator's speech follow:

"Scientists within the United States Animal and Plant Health Inspection Service have already drafted a proposal for protecting agriculture and human health by establishing a biological barrier across a narrow isthmus in Mexico. They have sound reason to believe such a barrier could actually prevent the bees from migrating further north toward the United States."

The APHIS, USDA proposal was released recently and has been dubbed the "Africanized Bee Barrier", ABB. To date I have talked with no one (other than USDA) that feels that the barrier will work. Delay — perhaps, but would the delay justify the cost?

Senator Mathias tells us that action should be immediate:

"There is a catch, however, USDA must move immediately if the plan is to work because the bees will reach the isthmus in 3 to 6 months. If the USDA chooses to delay, the bees will have already crossed the isthmus and the opportunity will be lost."

Sounds a bit like a bureaucrat in search of funds.

Since this is a subject that will deserve our attention these next few years, we plan to cover the subject quite thoroughly at our Corpus Christi convention.

THE NEW CONGRESS (100th)

I have no crystal ball view about the make-up of the new Congress. However, I am guessing that farm programs will come under close scrutiny and this may spell trouble for our honey loan program since we are lumped in the "Miscellaneous & Others" column where we will receive little attention except from nitpickers. Regardless of the attitude of the 100th Congress toward beekeeping, we will continue urging beekeepers to make contact with their elected congressional delegation and keep them advised about your day to day problems. May we count on you?§

BEE BARRIER... Cont. from Page 623
defining an "acceptable" level of Africanization for commercial beekeeping stocks.

Tucson, AZ.

1) Research on identification of AB, including differences in wingbeat frequency between AB and European bees and differences in release rate of sting pheromones.

2) Use of radar for locating drone congregating areas to increase efficiency of drone trapping.

3) Pollination efficiency of AB in Mexico and management methods needed to use AB for pollination.

4) Develop low-cost, low-maintenance bait hives for attracting AB swarms using pheromones.

Beltsville, MD.

1) Developing new methods and improving existing methods for the identification of AB. Studies on the use of cuticular hydrocarbons, mitochondrial DNA, and the use of an image analyzer for the identification of AB.

2) Using chitin inhibitors for controlling brood rearing. Dosage levels, method of feeding chitin inhibitors and the resultant period of no brood rearing need to be evaluated as well as subsequent fate of the colony.

Logan, UT.

1) Research and development of alternate pollinators as possible replacement, if Africanization results in a shortage of honey bee colonies for pollination. Pollinators such as *Osmia sanrafaelae* and *Chalicodoma mucorea* are being evaluated for this purpose.

NON-USDA RESEARCH ON AFRICANIZED BEES

University of California, Berkeley (Dr. H. Daley).

1) Improving morphometric methods for identification of AB workers.

2) Developing a morphometric method for identification of AB drones.

University of California, Berkeley (Dr. G. Hall).

1) Research on the use of DNA probes for identification of AB.

University of Georgia, Athens (Dr. A. Dietz).

1) Proposal for short-term project in Kenya on the feasibility of using *A. m. monticola* as a biological barrier against *A. m. scutellata*.

University of Minnesota, St. Paul (Dr. B. Furgala).

1) Development of hemolymph protein analysis system for identification of AB.

University of Kansas, Lawrence (Dr. O. R. Taylor).

1) Selection of two bee stocks selected for the time which drone mating flights occur, one for early and the other for late flights.

2) Environmental tolerance (elevation) of AB in Costa Rica.

Smithsonian Institute, Washington, DC (Dr. D. Roubik).

1) Impact of AB on native pollinators in Panama.

After the initial meeting in March, where the ARS team reviewed the status of research and technology that would support a barrier concept, a second meeting was called at APHIS Headquarters in Hyattsville, MD. Here, members of the entire Technical Committee for AHB's and Parasitic Mites and several other interested people met to discuss recommendations and implementation of a Barrier Program.

Members of the Technical Committee are:

• Chairman: P. J. Lima, Staff Splst.
Plant Protection and Quarantine
Animal and Plant Health Insp. Svc.
USDA, Room 629, Federal Bldg.
Hyattsville, MD 20782

• Members: H. Shimanuki, Lab. Chief
Agricultural Research Service
B-476, Room 211, BARC-EAST
Beltsville, MD 20705

• Thomas E. Rinderer, Res. Ldr.
Agricultural Research Service
Route 3, Box 82-B
Ben Hur Road
Baton Rouge, LA 70808

• Al Dietz, Prof. of Entomology
The University of Georgia
Department of Entomology
Athens, Georgia 30602

• Roger Morse, Prof. of Entomology
Department of Entomology
Cornell University
Ithaca, NY 14853

• Marion Ellis, State Apiarist
Apiary Insp. of America
Nebraska Department of Agriculture
301 Centennial Mall South
P.O. Box 94756
Lincoln, NB 68509

• Basil Furgala, Prof. of Entomology
Dept. of Entom., Fisheries, & Wildlife
University of Minnesota
St. Paul, MN 55108

• Binford Weaver
Weaver Apiaries, Inc.
Route 1, Box 256
Navasota, TX 77868

• Darrell Wenner
California Bee Breeders
Route 1, Box 284
Glenn, CA 95943

• Richard Adee
Adee Honey Farms
P.O. Box 368
Bruce, South Dakota 57220

From this second meeting a set of recommendations was offered and presented to APHIS officials. This next section covers these recommendations.

•

No single approach for the establishment of an Africanized bee (AB) barrier alone is available. Rather, it is necessary to use a series of actions, each appropriate to a portion of the annual cycle of changing honey bee activities and to one or more of several biological processes leading to Africanization.

The following actions collectively provide tools for an integrated system having a high likelihood of both preventing Africanization in the Bee Regulated Zone (BRZ) and of preventing Africanized bees from passing through the zone. These actions are based on the following known proceses of Africanization:

a) human assisted movement
b) prime swarms
c) queen parasitism of established colonies
d) drone parasitism of established colonies
e) absconding swarms
f) mating superiority founded in a numerically greater production of reproductives

DETECTION

Organize a Project Team.

A team structured according to the APHIS regulatory concept is

Continued on Next Page

BEE BARRIER... Cont. from Page 636
fundamental to the development and maintenance of a barrier zone. In addition to organizing and conducting project activities, the team would have additional special duties. These special duties involve interacting with the general public in the BRZ and teaching members of the local apiculture community management of bees to conform to project needs. Also, a bounty system would be implemented to encourage the reporting of swarms and feral colonies. Upon receipt of a report, the team will verify the report, identify the bees, and pay the bounty. The bounty must be kept low enough to discourage people from rearing or stealing bees in an attempt to defraud the program.

Editors Note: Two items should be mentioned here that came out at a recent meeting I had with both APHIS officials and several members of the Technical Committee.

First, APHIS is in a very strong position to work with the Mexican Government on this project. They have had personnel working in Mexico for many years on a variety of similar projects. They are familiar with the cultures, the government (local, regional and state) and the interactions required to make these bi-governmental projects work effectively.

Second, and probably more importantly, is that all aspects of this program are based on a 'Counterpart' system. That is, for every individual part of this program there will be, essentially, 2 leaders. One will be an APHIS official, the other will be representing the Mexican part of this effort.

Presently, plans are that Mexico will be funding a fair share of this program, and is talking with the

World Bank regarding financing. (See insert)

Collect Composite Samples Using Insect Nets and/or Bait Stations.

It is important to survey for new AB arrivals in the BRZ, especially when nectar is available. Monthly composite samples using insect nets to collect foraging workers on flowers at 0.5 km grid intervals will supply information on their presence. During dearth periods, when foraging is possible (no rain), bait stations will also be set up to collect foragers for identification. This system will be used alternatively with roadside sampling, which is dependent on natural flora. When samples containing AB are found, bee-lining and other techniques can be used to find the source of Africanized foragers to that it can be destroyed.

Inspect Ships.

All ships arriving from ports where AB are established will be inspected immediately upon arrival in ports within or beyond the regulated area. In addition, ships docking in the Yucatan, a probably heavily infested area, should be insepected just prior to departure.

ACTION

Establish a Bee Regulated Zone and Institute a Quarantine.

In order to institute actions a BRZ will have to be designated to control bees and beekeeping. This must include locating and registering all managed colonies. The BRZ must be wide enough so that an Africanized swarm would not likely cross this area undetected. Since absconding swarms are likely to travel many kilometers, a zone 160 kilometers wide (100 miles) and extending from coast to coast (135 miles) across the narrowest part of Mexico will be required. A quarantine on the Africanized side of the zone will be necessary to prevent human assisted movement of Africanized bees in or out of the regulated zone.

Encourage and Support Beekeeping.

The success of the project depends on the retention of beekeeping in the BRZ for social as well as biological reasons. Managed colonies will provide a reservoir of desirable drones that will impact the feral population. All rustic hives should be replaced by modern movable-frame equipment so that drone production and queen certification can be facilitated. Beekeepers will be supplied with drone foundation prior to seasonal colony buildup and instructed in the placement and quantity of drone comb desired. The colonies must be maintained with European queens so that European drones are produced. The tendency of Africanized drones to migrate to European colonies (drone parasitism) will have an important effect on desirable drone production. Steps must be taken to limit the entry of Africanized drones into managed colonies. Registration of all managed colonies in the regulated area will facilitate this endeavor.

Establish Drone Traps.

Within the regulated zone, establish "state-of-the-art" drone traps with pheromone lures on a 1.5 km grid (1 sq. mile). These dimensions can be adjusted as more information is gained on drone flight patterns including the location of leks (drone congregation areas).

Drone Flooding.

The trapping of Africanized drones in a defined area will be alternated with the release of desirable drones. A schedule of six days of trapping all free-flying drones, while desirable drones from managed colonies are confined using the ARS drone and queen trap, followed by 12 days with no trapping and free flight allowed from managed European colonies, must be established. This schedule could be rotated over 2-3 small areas, utilizing the same methods and personnel in all regions. This activity will be restricted to only periods of significant local drone production.

Establish Bait Hives.

To reduce the spread of Africanized bees across the BRZ, bait hives to collect and destroy Africanized swarms will be established. Where vehicle access is available, the hives should be closely spaced, especially on the Africanized bee side of the BRZ, five hives per square kilometer is recommended. However, in parts of the zone having restricted access, many of these hives will be restricted to only roadside placement. In this case, ten evenly spaced hives per linear kilometer is recommended. Until bait hives are developed that will kill swarms automatically, these hives will need to be inspected biweekly during the swarming season.

Certify Colonies.

Since honey bee queens frequently live only a few months in the tropics

Continued on Page 645

Answers to Testing Your Beekeeping Knowledge

From Page 620

1. True Sexually mature drones have definite congregation or mating areas away from the hive. These assembly areas continue to remain virtually unchanged from year to year.

2. True Immediately after mounting the queen, drones become paralyzed as a result of the eversion process. Then they swing backwards, still attached by the genitals. About 2-4 seconds after swinging back, an explosive snap (genital explosion) is heard which coincides with the separation of the paralyzed drone from the queen.

3. False Drones are attracted to the queen by her sex attractant and follow her "odor trail" from a windward direction. Conical drone swarms orient to her posteriorly and ventrally.

4. False Successful mounting of the queen by the drone does not necessarily mean that mating will occur. Eversion of the penis cannot take place unless the sting chamber is open. Drones are not physically equipped to force the sting chamber open.

5. True in a young drone, the testes are very large, slimy appearing organs that occupy almost the entire upper half of the abdomen. After emergence of the adult drone from the cell, sperm migrate from the testes to the seminal vesicles where they are stored until mating. After sperm migration, the testes gradually shrink to small greenish-yellow structures in the sexually mature drone.

6. False During the drone eviction process that typically occurs in the fall in temperate climates, the older drones are subjected to attack first.

7. False Drones feed themselves lavishly on honey in the hive prior to taking searching or mating flights. Drones have never been observed on flowers, so all energy sources are obtained prior to leaving the hive.

8. False Drones reared in worker size cells from unfertilized eggs laid by laying workers are smaller in size, supposedly due to underfeeding in cramped quarters. While their sperm are viable, they are often incapable of flying actively.

9. False The production of drone comb and brood are not controlled by the same factors. MAximum drone cell production occurs approximately one month prior to brood production and colonies often continue to build drone cells long after drone brood production has ceased for the year. The amount of drone comb built is dependent upon the amount of drone comb already present and the size of the worker population. The amount of drone brood reared is highly dependent on the nutritional status of the colony, size of the drone and worker population, and the queen's ovipositional behavior.

10. D) forelegs are used to measure the cell diameter.

11. B) 8 days

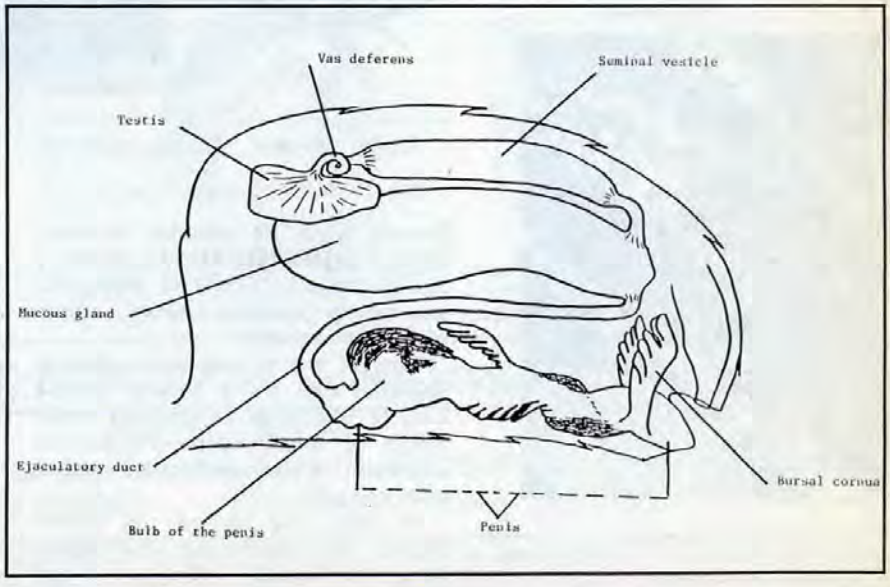
12. D) 16 chromosomes

13. See the diagram that follows.

There were a possible 20 points in the test today. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying — you will do better in the future.

Number of Points Correct

20 - 18 Excellent
17 - 15 Good
14 - 12 Fair



FORESTS AS NECTAR SOURCES

By ARNOLD KROCHMAL

The nation's forests — private, state and Federal, are rich sources of honey for beekeepers. From one coast to the other, from the Canadian to the Mexican borders, this free forest product is produced each year. A partial list of some forest nectar sources is given at the end of this article.

U.S. Department of Agriculture's monumental *Beekeeping in the United States* published in 1980 calls for beekeeping to receive " . . . greater consideration than it now receives in land-use planning, and in providing beekeeping sanctuaries on State and Federal Lands."

Regretfully there has been no response to this urgent need for an industry which covers the contiguous states as well as Hawaii. Efforts some years ago to persuade the National Forests in North Carolina to consider planting blocks of sourwood, *Oxydendrum arboreum*, perhaps to the amount of 5% of new plantings, were ignored. An assistant director of the Forest Service has noted that beekeeping "isn't part of their mission". Of course neither are recreation vehicles. On the other hand, as early as 1905 the Secretary of Agriculture called for "...the greatest good of the greatest number in the long run." Obviously that meant more than lumber for giant corporations, recreation for urban dwellers and hunting. Although the Forest Service has stated this meant "...use of the many resources on a continuing basis, to meet local and national needs," this has not been extended to cover the provision of nectar blocks for local beekeepers.

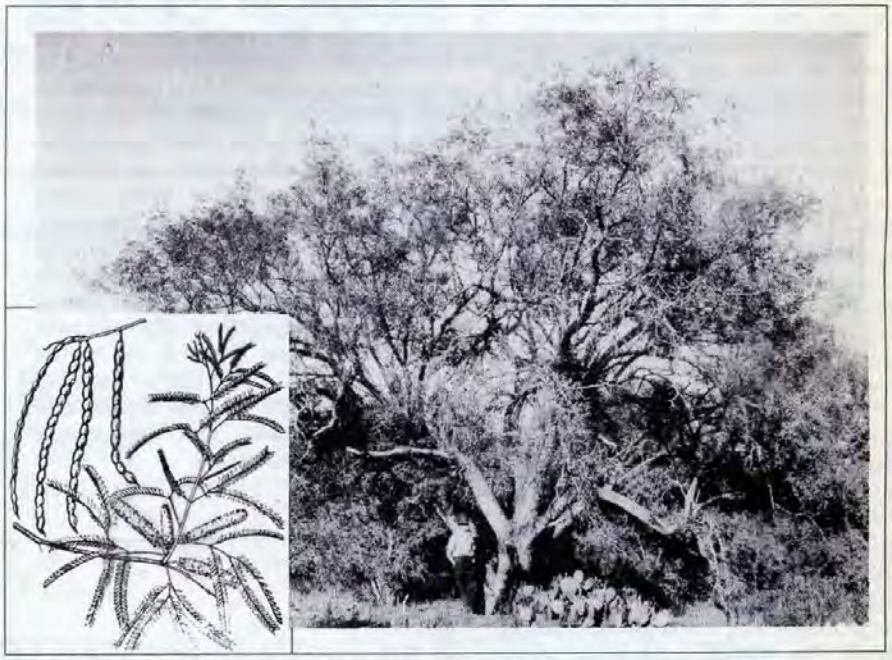
Under present laws, beekeepers can place hives within the National Forests with a charge of so much per hive. This is a neutral activity costing management of the the forests nothing. It is time that the National Forests began to consider, to some modest degree, management of these public lands in terms of trees and understory nectar sources, along with other concerns.

Part of the management of both National and State Forests should include plantings of selected small blocks of nectar sources, from the sourwood to basswoods, locusts and others as well.

In 1980, we visited the Soviet Union to lecture at the Main Botanical Garden in Moscow on the forest understory as a useable renewable resource. We were interested to learn that over 3/4 of the honey Russian beekeepers produced is said to originate in the forests of Russia, and further, helicopters were used to move colonies to blossoming forests.

There are numerous public meetings investigating proposed Forest Service management programs. It is well worthwhile for beekeepers and their organizations to begin to attend these meetings so that their needs can be expressed publicly. The Forest Service must become aware of the role their forests play, and can play with a little cooperation.

Some of the most important nectar sources: algaroba; ash; basswood; boxelder; buckeye; catclaw; elm; eucalyptus; gallberry; holly; laurel cherry; locust — black, thorny, water; mangrove — black, red, white; maple; mesquite; Oregon maple; pine; poplar; silver oak; sourwood; tulip poplar; tupelo, vine maple and willow.§



Typical Mesquite, Prosopis julifloria. – (insert - leaves, flowers and pods)

Leaves and Flowers of Oxydendrom arboreum, Sourwood.

EARLY BIRD GETS WORM

Be an early bird — *Save Big Money!*

25% DISCOUNT off our regular 1987 Prices. To qualify for this special EARLY BIRD DISCOUNT, all orders must be postmarked by midnight, December 31st, and must be accompanied by payment in full. Early placement of orders helps us to more efficiently plan our production and shipping schedules — thus saving you money. You can save shipping charges by picking up larger orders in your truck or station wagon. We are located on a major North-South Interstate Highway.

BABCOCK BEES ARE NOW

DISEASE RESISTANT

STEVE TABER, a former U.S. Government Bee Geneticist, has supplied us with disease resistant breeding stock which we have incorporated at no additional cost to you into all of our strains and races offered for 1987. This bred-in resistant factor is not a guarantee against infection from American Foulbrood, European Foulbrood or Chalkbrood; however, in *most* cases of exposure, our bees will not catch and will in fact clean out these diseases.

BABCOCK GOLDEN ITALIANS are large golden yellow bees that are easy to handle, very gentle and produce very large colonies. They are extremely good honey producers developed from my top honey producing hives. They are "THE MOST BEAUTIFUL BEES IN THE WORLD".

BABCOCK IMPROVED SILVER GREY CARNIOLANS have been developed from hardy, tough strains from the far North and can be wintered very successfully in outdoors in extremely cold temperatures. These large silver grey bees work equally well in hot or cool climates and are excellent honey producers. I believe my strain of Carniolans are the most Winter Hardy race in existence. These bees are extremely gentle and can be worked in good weather without smoker or veil.

BABCOCK RACIAL HYBRIDS are a true cross of my Silver Grey Carniolans and my Golden Yellow Italians. To obtain this cross bred hybrid, Carniolan queens are mated to Italian drones. This hybrid is a very prolific, hard-working bee, developed for vigorous commercial honey production. This cross bred bee is very Winter Hardy and does well even under adverse conditions.

GOOD REASONS FOR BUYING BABCOCK BEES AND QUEENS

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KOOVER'S KORNER

By CHARLES KOOVER
1434 Punahou St. #709
Honolulu, Hawaii 96822

"Perhaps one should not love a land so well that leaving it can knot the heartstrings so, Can catch the throat, can cast a shadow spell."

LOVE NEVER FAILETH

In 1917 a Dutch ship brought me to San Francisco. I had been hired to go to Indonesia to work on an American rubber plantation. For 2 weeks I roamed the streets of San Francisco and I fell in love with the American people and that charming city. For 5 years, the length of my contract, I dreamed about America. On Lincoln's birthday, 5 years later, another ship brought me back to San Francisco. The flags were out. "For me," I said. For I did not know who Lincoln was. I was back in this wonderful land of liberty. However, the ship that brought me had made a one day stop in Honolulu. I guess I easily fell in love, for I kept thinking of Honolulu while I tried to adjust to the cold weather of California. Remember, I had arrived on February the 12th. Finally, after 3 months I gave up and took a boat back to Honolulu. If there ever was a paradise, this is it.

I worked in the office of a sugar plantation and met my greatest love of all, an American school teacher from California. When we wanted to get married, we went back to California. And there we lived for 50 years. But Hawaii kept calling us and after all those years we came back to this earthly paradise. Here we retired to live out our lives. But I wanted to have bees in Hawaii so I shipped with our belongings my first hive I bought when I started beekeeping. A fine sugar-pine hive with drawn out combs and all the other paraphernalia one needs to keep bees.

Little did I realize what I was in for. It is hard enough to find a location for your bees in your garden without stirring up your neighbors. But where to keep bees in a retirement home for 300 people? I had brought with me a 50 pound lard-can full of crystalized black button-sage honey. Like sourwood, it is one of America's choice honeys. I will be contested on that.

I took that can of sage honey to the basement where the house mechanics of this 13 story condominium have a work shop. "Do you guys like honey?" I querried. Did they? They came up with the biggest jars I have ever seen. There wasn't much honey left when I filled those jars. But I had won their hearts, and when I inquired where I could keep a hive of bees they suggested on top of the roof. Fine with me. And fine with the bees.

To get there you go through a door that has a sign on it, NO ADMISSION. Then you climb the stairs to a large room full of air-conditioning machinery. Out another door, out into the open. And there it was. Like a brewery, with a water cooling tower, surrounded by a concrete wall of decorative tile full of small holes. An ideal place for a hive of bees. So I thought. The bees loved it too. But little did I realize what was to come.

The old ladies in this retirement home like to do their setting up excercises on the top deck of the building. And as they did their calisthenics they saw dead bees on the floor, and flying bees going in and out through a hole in the wall that

Continued on Page 646

FOR THE LOVE OF BEES

Bees came to our garden during the early part of World War II. Like many middle-aged men (I mean 45, not 65), I was aiding the war effort working in the blacked-out experimental department of a large aircraft manufacturing plant. Having spent my life in the out-of-doors, it was hard on me. Finally, after months of working day after day without a break, I cracked up. "Go home," said the medic, "and take a rest." Complete exhaustion was the diagnosis, and tired I was.

So for many weeks I rested, sitting on a box in my garden next to the beehives, watching and learning about the life of my bees. Their tireless efforts from morning till night made me stop feeling sorry for myself and helped me to sleep again and regain my strength. "The bees," my wife said later, "were a great help."

For many years now, the bees have been around and will be, until "the chore girl goes telling the bees." Only there are not chore girls anymore.

The bees and I have done well and the years have slipped by. Foul brood has passed them up and I have learned to aid them in garnering large crops of honey.

One change came about — they no longer enliven our garden for I took them to a wonderful spot in the nearby mountains. They thrive there and it gives me an excuse to spend a great deal of time with them. For time I have aplenty in my semi-retirement.

Sometimes on a late afternnon when a setting sun is about to drive me home, I watch a haggard worn-out bee rush out of a hive, fall off the alighting board and drag her broken body away as far as she can, to die a lonely death among the weeds. I compare her life with mine.

She gave so much and received so little. While I, in the evening of my life, am allowed to enjoy what I have been able to save. It makes me feel humble and grateful that it was my privilege to come into the world as a human being instead of a bee.§

Reprinted from the British Bee Journal, 1966.

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BEE BARRIER... Cont. from Page 637

and Africanized queens often replace European queens, all managed colonies will be inspected and certified at approximatley 4-month intervals. This certification could be facilitated by the exclusive use of artificially marked (nail polish) European queens.

Trap Queens.

One colony from each apiary will be maintained as a trap for Africanized queens. To achieve attractiveness, the queen in this colony will be caged, simulating queenlessness. Because the queen is caged, the colony must receive frequent additions of brood or adult worker bees. The hive will be fitted with the ARS drone and queen trap to collect parasitizing Africanized queens.

•

At the end of October, funding for the U.S. portion of this program was still in question, although was available 'on paper'.

When Congress ceased activity in October, they let hang a decision on whether or not to 'specify' the first $1 million dollars as part of the budget for APHIS for 1987. The decision was then left to APHIS to find this amount from within its own budget to start the program. As of October 24th, that decision was not yet made.

The total first year budget for this program is in the neighborhood of $8.3 - $8.6 million dollars, most of which will be spent on initial purchase and installation of equipment and training personnel.§

CURRENT STATUS

"The future of this Barrier is by no means certain, there are no guarantees." This from APHIS headquarters at the end of October.

On the 27th of the same month, members of the Committee on Africanized Bees from Mexico, representatives of the ARS and representatives from Guatamala met in Mexico City to discuss the Barrier project. Out of this meeting came a 3 part proposal to be presented to APHIS.

Basically, the proposal was as follows:

A. Continue implementation of the Barrier.

B. Initiate or increase management and extension services for training of beekeepers inside the zone area, and,

C. Increase support for both Mexican and Guatamalan beekeepers south of the zone.

During December, representatives of all involved parties will meet to continue and hopefully finalize discussions on this important project.

Migration of Africanized Bees is expected to reach the zone area in 3 to 6 months, and it appears time is of the essence.

Meanwhile, APHIS must find the funds to start this program from within its own budget as Congress declined to specify any dollars to aid them. It is expected that the entire project will cost over $8 million dollars, with first year costs at a little less than $1 million. Mexico and Guatamala will provide little in the way of funds for the project, although Mexico is appealing to several international funding agencies for support.

If the meeting in December goes extremely well and plans start immediately, it will take approximately 12 months to harness all the resources necessary to implement and maintain this project.§

KOOVER... Cont. from Page 642

surrounds the water tower. When we settled in this home for the aged I was asked what my hobby was and I told them it was bees. So I became known as the beekeeper.

Those ladies came to me and said there must be a swarm of bees in the water cooling tower. Another one told me she had a bee in her apartment. I knew the jig was up. The bees would have to go. How did they get there in the first place? One of my local beekeeping friends had given me a swarm. He brought it to me one evening, and in the dead of night I had taken it up in the elevator to the roof and installed them by the light of the moon on those drawn-out combs.

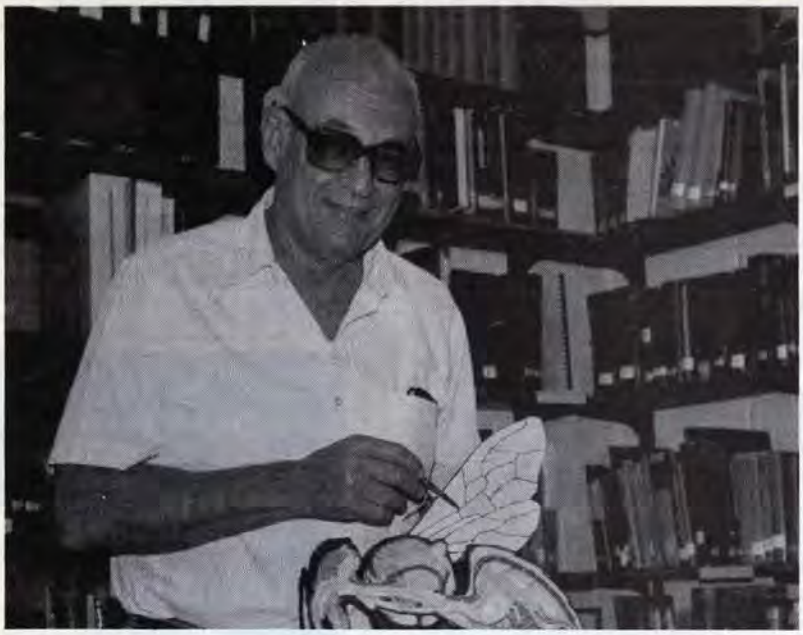
This place is surrounded by 4 huge Kiawi trees. Hawaii's finest honey producing trees. No question about that. So all the bees had to do was coast down to the trees, and since there was a nectar flow on, tank up and fly with their heavy load up to the top of the building. Things were going great. They filled the hive with brood, pollen and honey in jig time. I would sneak up to my rooftop apiary of one hive and have the time of my life. What an ideal way to retire. But those old girls insisted that the supposed swarm be taken out, so what could I do? I told my friends, the mechanics in the basement about it and they took a dolly up to the roof and brought the hive down in the elevator covered by a tarpaulin, without a question by anyone. A friendly beekeeper took my bees to his bee-yard and that was it.

Months later I told the columnist of the local newspaper about my bees on top of my elegant retirement home and swore him to silence. Never trust a newspaper man to keep his word if he sees a story. A few days later when I came down to breakfast a lady in the dining room told me, "you are going to catch a lot of flack." "What about?" I asked. She showed me the morning paper and there it was, all about my bees on the roof.

On the front page mind you, a cartoon of a cop pinching a bee for violating the local ordinance of keeping bees within the city limits. I went back to our apartment to tell my wife. She began to cry and said, "They are going to put us out". "No way", I replied. "We have been here more than 3 months." The probationary period all new members go through. There were newspapers put under our door carrying the story. People would hand them to me in the elevators or wherever they met me, and they all thought it was a great joke. Some took it very seriously. One old lady came to me and said, "My doctor told me, one more bee sting and you are going to die."

The years have been good to me. I am back where it all started 60 years ago. I lost my lovely wife 9 years ago, and my bees, but I am living in paradise. "All is well that ends well". Mark Twain expressed it this way, *"No alien land in all the earth has any deep, strong charm for me but that one; no other land could so longingly and so beseechingly haunt me, sleeping and waking, through half a lifetime, as that one has done. Other things leave me, but it abides; other things change, but it remains the same. For me, its balmy airs are always blowing, its summer seas flashing in the sun; the pulsing of its surf is in my ear; I can see its garlanded crags, its leaping cascades, its plumy palms drowsing by the shore, its remote summits floating like islands above the cloudrack. I can feel the spirit of its woody solitudes; I hear the splashings of the brooks; in my nostrils still lives the breath of flowers that perished twenty years ago."*

When you come for a vacation to Hawaii, which you should, look me up. I am listed in the telephone book. Cheerio!§



M. D. LEVIN Retires

M. D. Levin, Director of the Carl Hayden Bee Research Center, Tucson, Arizona, will retire in early December 1986. Dr. Levin leaves the Agricultural Research Service of the U.S. Department of Agriculture after more than 36 years as a scientist and administrator of apicultural and biological research.

A native of Connecticut, Dr. Levin has had a longstanding interest in beekeeping. First introduced to honey bees by his seventh grade science teacher, Marshall turned his new-found passion into a high school avocation, then into a career of public service. As a young man in the military Marshall visited beekeepers at each place he was stationed in England and the United States.

Following World War II, he completed a B.A. Degree in Entomology in 1947 at the University of CT, then an M.S. Degree in 1949, and in 1956 his Ph.D. from the University of MN. under the late Dr. Mikola Haydak.

In 1950 Dr. Levin joined the USDA Legume Seed Research Laboratory at Logan, Utah where he studied the foraging behavior of honey bees on alfalfa and other crops. In 1962 he was transferred to the USDA Bee Lab in Tucson and in 1965 became its leader; a position he held until 1969 when he was transferred to Beltsville, Maryland to serve as Cheif of the Apiculture Research Branch in the Entomology Research Division of Agricultural Research Service. While at Tucson he guided the construction and staffing of the present facility.

At Beltsville, Dr. Levin occupied several positions of increasing responsibility. In 1972 he became the National Research Program Leader for Crop Pollination and Bees and in 1975 he was appointed Deputy Assistant Administrator for Plant and Entomological Sciences. Then he became Chief, Crop Protection Staff, and then Chief, Crop Sciences Staff.

A reorganization of the National Program Staff in 1982 eliminated the Crop Sciences Staff and provided an opportunity for Dr. Levin to return to research. After a 4-month temporary assignment in Fresno, California as Acting Area Director, Dr. Levin was reappointed Director of the renamed Carl Hayden Bee Research Center at Tucson in 1983. In addition, he assumed the responsibility of Research Leader of the Honey Bee Nutrition Unit there.

Dr. Levin has made many research contributions over the years, singly and with others, to an understanding of the role played by the pollinating activities of honey bees and other insects in the production of alfalfa, carrot, onion, and safflower seed crops, as well as canteloupe and eggplant. Factors affecting the pollinating effectiveness of colonies and their management for pollination, such as the nutritional requirements of honey bees and the effects of pesticides and other environmental factors on honey bees, were also studied. During his career, Dr. Levin has published approximately 100 technical and scientific papers. His most recent paper, "Value of Honey Bees to Agriculture", is widely quoted. In 1982 he received a Special Recognition award for service and support to the beekeeping industry from the American Beekeeping Federation.

Dr. Levin has completed numerous special assignments for the USDA, ARS, including participation in a scientist exchange program with the USSR in 1967 and as technical representative on numerous committees and in many professional meetings, both national and international.

After retirement Marshall will retain an active interest in the problems of beekeepers. He will become a Research Collaborator at the Tucson lab, continue to teach "The Honey Bee" class at the University of Arizona, and will travel with his wife.

Dr. Levin leaves behind a substantial list of contributions to the beekeeping industry, and a long career of dedicated service to the Agricultural Research Service and to many coworkers.

A retirement luncheon for the Levins will be held December 16. Those wishing to contribute to a book of letters should send their contributions to Lucille Valente (USDA, ARS, 2000 E. Allen Road, Tucson, AZ 85719) so that they will reach her by December 15, 1986.§

News & Events

☆ ARIZONA ☆

The Sixth Annual Arizona Beekeeping Seminar will be held February 7 and 8, 1987. Steve Taber will lead the program discussing Queen Rearing.

Only 30 persons can be accommodated. Fees, $50.00 which includes lunch, must be paid by January 4, 1987.

For additional information contact: Brett E. Cameraon, 6849 West Lewis Avenue, Phoenix, Arizona 85035, (602) 245-1391 or Mike Kuzmik, 1544 West 6th Street, Tempe, Arizon 85281, (602) 968-0969.

☆ CALIFORNIA ☆

DAVIS — University of California's Small Farm Program has recently set research and education priorities for the next several years, according to Ronald Voss, Program Director.

They include the following areas: *mnarketing, specialty crops, "organic" and sustainable farming, enterprise management, general proeduction and crop culture, postharvest handling, and ethnic/subsistence farming.*

The Small Farm Center at Davis serves as the nucleus for the small farm program, Voss said, with services including:

•"Small Farm Series", leaflets on program priorities. •"Small Farm News", a bimonthly newsletter. •Information for extension workers, researchers, and small farm clientele. •Assistance with conferences, workshops, and seminars for farm advisors, specialists, and non-UC organizations. •Liaison among farm advisors, specialists, farm groups, government and non-government agencies. •A library of small farm-related books, journals, bulletins, magazines, reports, and other information.

For further information on the Small Farm Program, contact Claudia Meyers, Acting Director, Small Farm Center, UC Davis, phone: (916) 752-0678.

☆ CANADA ☆

ONTARIO

Ontario Beekeepers' Associaton

The Ontario Beekeepers' Association will hold their 105th Annual Meeting and Convention Wednesday, December 3rd and Thursday, December 4th, 1986 at the Royal York Hotel, Toronto, Ontario.

Program highlights include: Canadian Honey Council Report, Buying insurance, New Zealand Bees, Overwintering, Honey Production, Shipping Bees, Queen Rearing, Wax Moths, Africanized Bees, Nominations/Elections, and Business. For more information contact Patricia A. Westlake, Business Co-Ordinator, R. R. 3, Bayfield, Ontario NOM 1G0, (519) 565-2622.

SASKATCHEWAN

Saskatchewan Beekeepers Association

Annual Meeting and Convention

The Annual Meeting of the Saskatchewan Beekeepers Association will be held February 5, 6 and 7, 1987 at the Sheraton-Cavalier Hotel in Saskatoon. The meeting will focus on the tracheal mite research project which is being conducted in La Ronge, Saskatchewan and on the problems of the approaching Africanized bee in Central America.

Reservations can be made by calling the Sheraton-Cavalier in Saskatoon at (306) 652-6770 and further information regarding the program can be obtained from John Gruszka,Secretary-Treasurer,Saskatchewan Beekeepers Association, Box 3003, Prince Albert, Saskatchewan, S6V 6G1, (306) 953-2790.

VICTORIA, B.C.

Doug McCutcheon presenting Ed Milot with P.F. (Roy) Thurber Award.

The 9th Annual W. A. S. Conference was held August 18-21, in Victoria. B.C. A short course on honey show judging, a social center called 'The Hive', the many speakers, outdoor demonstrations, a pentathalon, bee beards and the traditional banquet combined for a very full conference.

Basil Furgala (U. MN.) was this years recipient of the 'W.A.S. Outstanding Service to Beekeeping' Award. Ed Milot, insturctor in the Apiculure Training Program at Malaspina College, Nanaimo, B.C. received the P.F. (Roy) Thurber award and Yvonne Donner, Martinez, California, received the A.I. Root Award.

Yvonne Donner, received the A.I. Root Award.

☆ LOUISIANA ☆

The ArkLaTex Beekeepers Club is Louisiana's largest club (over 100 members) and, among its many other activities, is hosting the Louisiana Beekeepers Association 1986 Convention, December 5th and 6th. The convention is the association's first to be held in Shreveport, La. For more information write: ArkLaTex Beekeepers Club, P.O. Box 78435, Shreveport, LA 71137-8435

☆ MINNESOTA ☆

Minnesota Meeting Schedule

The Minnesota Honey Producers will hold their Annual Meeting - December 5 and 6, 1986 at the Sunwood Inn, St. Cloud, Minnesota. Located on Highway 23, Downtown, St. Cloud.

☆ MISCELLANEOUS ☆

American Honey Producers Association Eighteenth Annual Convention
Sheraton-Marina Hotel
Corpus Christi, Texas

Tuesday, January 13, 1987

9:00 a.m. Registration all day,
Executive Committee
Set up Exhibits

1:30 p.m. Board of Directors
5:00 p.m. Convention Committee Meetings; Resolutions, Nominations, Audit & Finance
8:00 p.m. Get Acquainted Reception

Wednesday, January 14, 1987
8:00 a.m. Registration
9:00 Call to Order — Glenn Gibson, President, AHPA,
9:30 President's Address, Glenn Gibson
10:00 Kim Flottum, Editor, Gleanings in Bee Culture, "Our Editorial Policy"
11:00 Joe Graham, Editor, Am. Bee Journal, "Our Editorial Policy"
11:30 Dr. James Tew, Ohio Cooperative Extension Svc., "Our Industry Needs a Federal Extension Program"
1:30 p.m. Dr. H. Shimanuki, Bee Lab. Beltsville, MD, "History of Federal Bee Research"
2:00 Dr. Joe Moffett, ARS, Honey Bee Research, Weslaco, TX, "Honey Bee Pollination of Non-Agricultural Plants"
2:00 Jack Meyer, Jr., AHPA Exec. Committee, "Our Bylaws Are Beautiful"
2:30 Dick Kehl, Equip. Mgr., A.I. Root Co., "Changes in Equip."
3:00 Break
3:30 Dr. Roger Hoopingarner, Dept. of Entom. MI St. Univ., "An Outside View of the Economics of Beekeeping"
4:00 Dr. W. T. Wilson, ARS, Honey Bee Research, Weslaco, TX, "Updating Mite Research"
4:30 Ross Ballard, ASCS, USDA, Washington, D.C., "Writing Price Support Regulations"
7:30 An Evening with A Panel of Africanized Bee Experts

Thursday, January 15, 1987
9:00 a.m. Brian J. Sheriff, Cornwall, Eng. "Sale and Distribution of Imported and Domestic Honey in the British Isles"
9:30 Jerry Stroope, Commercial Beekeeper, Alvin, TX, "Reducing Moisture Content of Bulk Honey"
10:30 The New Honey Board, NHB A Panel Discussion Richard Adee, Moderator
1:30 p.m. David Miksa, Com. Beekeeper, "Beekeepers Should Be Paid For Colonies Destroyed Under APHIS Regulatory Programs"
2:00 (Speaker not Confirmed) APHIS, USDA, Hyattsville, MD "Objectives and Costs of an Africanized Bee Barrier in Lower Mexico"
2:30 Dr. Bud Wright, ARS, USDA, Beltsville, MD, "The ARS Part of the Africanized Bee Barrier"
3:00 Break
3:15 A Panel Discussion of the Africanized Bee Barrier, Richard Adee, Moderator. Member: Dr. Tom Rinderer, ARS, USDA; Dr. Orley Taylor, Univ. of Kansas; Marion Ellis, Nebraska State Apiarist

Friday, January 16, 1987
9:00 a.m. Jerry Cole, AHPA Exec. Comm. New Mexico, "Congressional Letter Writing"
9:30 Glenn Burkett, Pres., Iowa Honey Producers, "Keeping in Touch With Your Congressman"
10:00 Jack Thomas, Mann Lake Supply, "Feeding Syrup"
10?30 Break
11:00 Richard Adee, AHPA Vice Pres., "Washington Legislative Comm. Report"
1:30 Richard Goldberg, Ast. Secy. of Ag., "Honey Support Program For 1987"
2:00 Business Session, Gen. Assem.
7:00 Banquet

Saturday, January 17, 1987
9:00 a.m. Executive Committee

For additional information contact: Glenn Gibson, President, AHPA, Box 368, Minco, Oklahoma 73059 (405) 352-4126.

☆ NEW MEXICO ☆

Dynamic speakers and plush, yet inexpensive, accommodations will be in store for those who attend the New Mexico Beekeepers Association annual convention, Dec. 5th and 6th at the Albuquerque Radisson Inn, 1901 University Blvd. SE. Distinguished speakers include Glenn Gibson, American Honey Producers Assoc. President; Dr. Gordon Waller, scientist, Carl Hayden Research Lab; and Dr. Elbert Jaycox, author, scientist and educator from New Mexico State University.

The NMBA extends an invitation to all interested persons to attend. For further information, contact Betty Cole at (505) 869-2841.

☆ NEW ORLEANS ☆

American Beekeeping Federation seeks "Opportunities in Changing Times"

The Crescent City, New Orleans is the site of the 1987 convention of the American Beekeeping Federation. The annual event is set for Jan. 18-21, at the Hyatt Regency New Orleans.

The Federation convention program is being arranged to allow conventioneers plenty opportunity to sample the culinary delights of New Orleans. Instead of the traditional two evening banquets, only one combined banquet and honey queen coronation is scheduled.

A comprehensive program is being developed that will encompass *all* aspects of American beekeeping -- from the political scene to current research, from Africanized bees to honey promotion. The theme of the meeting will be **"Opportunities in Changing Times."**

The general session will open Sunday afternoon and close at noon on Wednesday. The business meeting will be Wednesday afternoon, and the usual directors and officers meetings will precede and follow the convention proper.

For more information contact Frank Robinson, Sec./Treas, American Beekeeping Federation, 13637 NW 39th Ave., Gainesville, FL 32606, (904) 332-0012.

☆ NEW YORK ☆

The annual winter meeting of the Empire State Honey Producers Association will be held Friday and Saturday, December 5 and 6, in Syracuse, New York. The program will be of interest to hobbyists and side-liners as well as commercial beekeepers, including talks and discussions about honey marketing, beekeeping in the Caribbean, disease inspection, pesticide problems, allergic reactions to stings, and other topics.

Quality Inn North (formerly the Hilton Motor Inn), 1308 Buckley Road, North Syracuse, New York 13212.

This is near the intersection of Interstate 81 and the New York State Thruway. Friday 10:00 a.m. to 4:45 p.m., banquet at 6:30 p.m. Saturday 9:00 a.m. to 2:00 p.m. For program details, call Dyce Laboratory, Cornell University, Ithaca, NY 14853 (607) 255-5443).

☆ OHIO ☆

International Symposium on Africanized Bees and Mites of Bees
The Ohio State University
Columbus, Ohio
MARCH 30 - APRIL 1, 1987
for Information Contact:
Dr. Glen Needham or Dr. Rob Page
Department of Entomology
The Ohio State University
Columbus, Ohio

1986 COUNTY FAIR PARTICIPATION

President Larry McCullough talks with fairgoers about bees and beekeepers.

The Northwest Ohio Beekeepers Association participated in the Allen County fair this year by manning a booth on beekeeping and their association. The booth displayed beekeeping equipment and products of the hive. The annual cookie contest drew more entries this year than previously — a good sign! Often asked at the booth: What or why is there a difference in the color of honey? To help answer this question we displayed one pound jars of Buckwheat, Alfalfa, Tupelo, Gallberry, Sourwood and a gift package containing Wildflower, Clover, Buckwheat and Orange Blossom. These floral sources show obvious differences in honey produced and made answering this question easy.

One can always start a conversation when you see a hand pointed at our observation hive. This is always a prime attention getter.

The audio slide program was made up to promote honey and its use in cooking. This created a demand for the recipe pass-outs, and we gave away over three hundred. We ran out on the fourth day of the seven day fair.

☆ UTAH ☆

The Utah Beekeepers' Associations annual meeting will be held December 5th and 6th at the Utah State Agricultural Building, 350 N. Redwood Road, Salt Lake City, Utah. Meetings will start at 9:30 a.m. There will be a banquet December 5th at 7:00 p.m.

The Program will focus on Honey Promotion and Marketing, Research Reports and Basic Beekeeping Tips. "Randy" Johnson, President of the American Beekeepers Federation will be our featured speaker. For more information call William R. Jones (801) 262-6079 or (801) 355-2033.

☆ AWARDS ☆

AOAC's 1986 Harvey W. Wiley Award was received by Jonathan W. White for his work in the Development of Honey Methodology.

Jonathan W. White, research leader with the U.S. Department of Agriculture, Eastern Regional Research Center, Wyndmoor, PA, until his retirement in 1978 and presently a consultant, is the 1986 winner of the AOAC Harvey W. Wiley Award. The award was given for his extensive work in the development of unique honey methodology.

The $2500 award is given annually to a scientist who has made outstanding contributions to the development and validation of methods of analysis for foods, drugs, cosmetics, or other related areas. The award was established in 1956 in honor of Harvey W. Wiler, "Father" of the 1906 Pure Food and Drug Act and a founder of AOAC. The award's primary purpose is to emphasize the role of the scientist in protecting the consumer and the quality of the environment.

Dr. White is widely recognized as the world's foremost authority on the analysis and composition of honey. He began his research on the composition and variabiliity of honey in 1948. Dr. White soon developed new and precise analytical methods for the analysis of honey to replace antiquated mehtods in use since the turn of the century; and over the years, developed scores of analytical methds for determining accurate information on honey sugars and other constituents.

His huge body of work on honey includes the discovery of four rare sugars, new methods of separation and identification, finding gluconic acid to be the principal honey acid, the development and improvement of methods for examining honey adulteration, the characterization of honey's antibiotic principle, the demonstration of the nature of various honey enzymes and much technological work on new processes and products.

He has been honored by the International Bee Research Association, the American Beekeeping Federation, the Honey Industry Council and in 1980, received the James I. Hambleton Award for Outstanding Research from the Eastern Apicultural Society.

☆ Classified Corner ☆

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THE TWELVE DAYS OF EXTRACTING

On the first day of extracting my true love said to me,
With our kids help he wouldn't need me.

On the second day of extracting the kids all laughed with glee,
Cause chicken chores and garden chores would now be up to me.

On the third day of extracting they gave a broken part to me,
"Help tie the tap down, run this half-load into town, Pick up some phenol and then check the bulk tank 'cause we're too busy."

On the fourth day of extracting they gave a broken part to me,
Said "Try the Honey Co-op, every implement dealer, just keep driving till you find the right pully".

On the fifth day of extracting my husband said to me,
"We're pulling at the other yard, you bring the pickup, fill the gas tanks and water jugs, put in extra supers, a can of bolts with nuts and locks, better bring our dinner and this time don't forget the iced tea."

On the sixth day of extracting my daughter called to me,
"The jarcapper jammed and I can't get it working. Take the old Chevy truck, make sure it's gassed up, check the oil and battery and get over to the honey house in a hurry."

On the seventh day of extracting my husband said to me,
"We're going to bring some honey in, will you clean the hot room?" Then he started the extractor and left me standing breathlessly.

On the eighth day of extracting my husband gave a list to me,
"Don't know if this belt will last, better get to town fast, I need another forty drums. Bring them by the honey house, throw in an extra smoker and don't forget your veil."

On the ninth day of extracting the clutch went on the truck and he called on the C.B.,
Said, "Find the heavy log chain, get the Ford tractor and come pull me."

On the tenth day of extracting my true love snapped at me,
As I handed tools up to him — *very nervously.*

On the eleventh day of extracting the whole crew said to me,
"Want to fill the gas tanks while we eat, take home this load of honey and bring back some more supers, another water jug and a spare tire."

On the last day of extracting my husband grinned at me,
"If everything goes right, we should be done by midnight. Aren't you glad you didn't have to help, Honee!"

Reprinted from the Minnesota Beekeeper

FARM WOMEN WIN RECOGNITION

By David Williamson

CHAPEL HILL — Farmers (and beekeepers) may work from sun to sun, but their wives' work is never done, according to a sociologist at the University of North Carolina at Chapel Hill who directed the first national study of farm women.

"We found that most of these women do a remarkable amount of work — everything from gardening, driving farm machinery, taking care of animals and bookkeeping to helping make business decisions, running errands, keeping house and raising children," said Dr. Rachel Ann Rosenfeld.

"A third of the more than 2,500 women we surveyed also were employed off the farm, three-quarters were active in community affairs and 60% felt they could still keep the farm running if something happened to their husbands."

Fifty-five percent of the women considered themselves one of the main operators of the farm they lived on, although few called themselves farmers when asked.

Rosenfeld, who spent part of her childhood on an Illinois farm, conducted the survey for the U.S. Department of Agriculture in 1980 while working at the National Opinion Research Center, a non-profit research organization in Chicago.

Her participation in the project grew out of an academic interest in the jobs women do, and she has written a book on the subject, "Farm Women: Work, Farm and Family in the United States," just published by the UNC Press.

"The USDA had been receiving letters from farm women asking why they couldn't get access to the department's resources and why it never paid any attention to them" she said. "The survey, designed in part to learn if farm women were being discriminated against by the government, was a result of those letters."

Rosenfeld and her colleagues found that more than 90 percent of farm women were "somewhat satisfied" or "very satisfied" with farming as a way of life. At the same time, however, roughly half wouldn't recommend it to others as a way to make a living.

The family remains a cornerstone of farm life, and for that reason, few farm women are sympathetic to the women's liberation movement, which they see as a threat to the family.

"I think the problem is not that farm women haven't understood women's liberation, it's that the movement hasn't always done a very good job in making its positions clear," Rosenfeld said. "The great majority of feminists certainly aren't against traditional family values."

In addition, she said, farm women know they work hard at tasks others might consider unusual for women — driving tractors, inseminating cows and keeping bees, for example. As a result, some see the movement's emphasis on access to traditionally male jobs as irrelevant.

One farm woman commented, "I'd like to see those women libbers come out here and muck out the barn. That's work!"

Other facts reported in the book are that:

- Women are the chief operators of 12 percent of American farms.
- On average, the women had spent two-thirds of their lives living or working on farms and ranches.
- Since 1920, the white farm population has declined from about 25 percent of the U.S. population to 3 percent, and the black farm population has declined from about 50 percent to 1 percent.

"We found that these women are extremely busy and active in politics, the 4-H, scouting, the P.T.A. and other organizations in addition to everything they did on the farm," Rosenfeld said. "They tend to consider themselves part of a unit — the family and the farm enterprise — and make it difficult for those who try to place them in simple categories of traditional versus liberated."

The UNC sociologist's study included all states except Hawaii and Alaska.§

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